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ABSTRACT

This monograph summarizes recent research on the education of learning disabled students. After an introduction by the editor, individual articles include: "Teaching Listening Skills" (Linda Higbee Mandlebaum and Richard Wilson); "Study-Skills Instruction for Students with Learning Disabilities" (Deborah Gartland); "Attention Deficit/Hyperactivity Disorder: Management and Intervention Approaches for the Classroom Teacher" (Audrey Ellenwood and Douglas Felt); "Teaching Social Skills to Students with Learning Disabilities" (Craig Fiedler and Bertram Chiang); "Classroom Management: Preventing Behavior Problems in Classrooms for Students with Learning Disabilities" (Mary O'Melia and Michael Rosenberg); "Computer-Assisted Instruction for Elementary School Children with Learning Disabilities" (David Majsterek); "Direct Instruction of Decoding Skills and Strategies" (Deborah Simmons and Edward Kameenui); "Self-Monitoring of Performance" (Robert Reid and Karen Harris); "Teaching Writing Skills Through Word-Processing Programs" (Marion Panyan and Evelyn Dailey); and "Curriculum-Based Measurement" (Christine Gliszczinski and Caren Wesson). Most papers include references. (PB)

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LD forum

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Special Edition!

Narrowing the Gap Between Research and Practice

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A SPECIAL PUBLICATION OF THE COUNCIL FOR LEARNING DISABILITIES

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A Funny Thing Happened on the Way to the Forum

As you no doubt have noticed, this issue of the LD Forum is a tad different. Rumors that the issue is simply an opportunity for me to relax from my normal editorial duties are unfounded . . . but I must admit that I did enjoy letting Rich Wilson, Melissa McGee Tullos, and Kirsten McBride do the lion's share of the work for this issue. As you can see, this issue of the Forum is devoted to *Research into Practice*. Sadly, over the years there has seemed to be a rather large gap between researchers and practitioners. As I noted in an earlier issue, many of the techniques that have been tested in the research labs never quite seem to accomplish the same results when applied to the real world. This has led many practitioners to criticize the "ivory tower syndrome" that seems to accompany much of the so-called applied research in learning disabilities. At the same time, purists often decry current practices in the classroom as being methodologically unsound. My opinion on this matter takes an eclectic tone: "Keep your head in the clouds, your feet firmly planted on terra firma, and go with your gut instincts." Roughly translated: Keep up with the current research (clouds), rely upon your experience to remind you that kids seldom respond as we expect them to (terra firma), and then be flexible enough to modify curricula to meet a particular student's needs (gut instincts). Of course, having said this, I am reminded of my youngest son's early school experience when he had a horrible time learning his "sounds." Try as he might, my son could not tell a "buh" from an "elephant," forget about "buh" from "cuh." He'd come home discouraged and hating school. I talked to his teacher several times and was assured that everything that could be done was being done. At that point I left my role as an educator and entered the world of . . . "The Parent Zone," that vast region beyond time and space that knows no logic and forgets all reason. My son was having trouble in school . . . My son! And then I remembered that my son did not go through his creeping stage as a young child. Oh my God! What if Doman and Delacato were right!?! What if all my arguments against their "unsound" practices were out of line?!? Is there a force that works to punish us through our children for criticizing others!?! Could the research that had been conducted on their method be flawed? After all, I had never done any of the research myself. So I did what any caring parent would do. I got on the floor with my son and began to creep across the carpet . . . once. He looked at me and said, "Daddy, this is dumb. Can I go play now?" I dropped my head in shame and answered, "Sure, son. By the way, don't tell anybody about this, okay." He hasn't told anyone to my knowledge, but I'm sure he has this tucked away with all the other stupid things I've done as a parent over the years. In the future, when I get on his case about how he mistreats my grandchildren, I'm sure he'll respond, "You're right dad, so let's talk about effective childrearing practices as you taught them to me." End of discussion. By the way, he finally learned his "buh" from his "cuh" and can now read better than I can. Could it be that all it took was that one trip across the floor? I suspect not. Rather, his teacher and I worked together to teach my son how to read, not by any hocus pocus "cure," but by direct instruction. That is, we taught him to read by teaching him *how* to read. Not a bad idea, and one that I'm sure has a rather sound theoretical base. The material presented in this special issue of the Forum also has a sound theoretical base and, hopefully, will be helpful in your attempts to teach your kids. Just remember, beware of "The Parent Zone." B^2

P.S. For those of you who live by Portents for Practitioners (poor souls), the Great Swami regrets that he has been put into temporary mothballs for this issue. However, he has assured me that all signs point to a happy, healthy, profitable, and loving three months for all his readers.

LD forum

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Narrowing the Gap Between Research and Practice

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A SPECIAL PUBLICATION OF THE COUNCIL FOR LEARNING DISABILITIES

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Introduction

Narrowing the Gap Between Research and Practice

It is with great pleasure that the members of the Research Committee and their colleagues in the Council for Learning Disabilities bring you this monograph. It is our belief that by translating recent research into practical guidelines we are helping to narrow the gap between researchers and practitioners — a task that appears increasingly complex. Because both teachers and researchers are members, CLD has inherent interest and opportunity in delivering research findings to practitioners, and we are very concerned with identifying and overcoming the problems associated with this task.

The Problems

There are a number of reasons why research findings are incorporated into practice in a haphazard manner. First, much of the research that is conducted in university settings and is published in professional journals lacks relevance. In some cases, this is because researchers ask questions that are so specific that the answers yield little usable information for teachers. In addition, some areas of research are so far removed from current practice that the application of findings from such investigations lies far in the future. The primary cause of this dilemma is that the questions many researchers are studying are not the questions most teachers are asking. Second, even when findings are potentially usable, they infrequently get into the hands of teachers. In some cases this is because too few teachers read the scholarly journals that publish the most recent research findings. Dissemination problems may also occur when researchers fail to consider teachers as a viable audience group or fail to relate often esoteric research findings to typical classroom practice. The primary cause of this dilemma is that currently no effective vehicle is available to ensure delivery of methods from researchers to teachers.

One Solution

The proposed solutions to the two dilemmas described here require major efforts on the parts of teachers and researchers, and certainly, this monograph will not accomplish these enormous tasks. The solution to the first dilemma (i.e., lack of relevance) will only be achieved when teachers and researchers remain in close and continuous contact while working cooperatively to ask and answer appropriate research questions. The solution to the second dilemma (i.e., lack of delivery) is more easily attained, at least in part. Provided a suitable delivery vehicle, many findings in the recent research literature can be incorporated by teachers into classroom practice.

The purpose of this monograph is to present to practitioners important research findings from the large and constantly expanding body of professional literature in such a way that teachers can implement the findings immediately in their classrooms. Each author's task was to select and review a subset of research studies related to a narrow topic with relevance for students with learning disabilities (e.g., decoding or hyperactivity) and to summarize the most important findings. Readers will find that a majority of the narrative in each chapter is devoted to providing teachers with activities, techniques, and procedures that can be implemented in a wide range of settings. In many cases, the authors have also included sample lessons, assessment tools, and integration methods that will facilitate classroom implementation.

Successful delivery of practical, empirically validated instructional techniques into the hands of educators requires three elements: a product, a vehicle, and an audience. The Research Committee has given us the product, the *LD Forum* the delivery vehicle, and CLD the audience. I believe that you will find this product useful. Please share ideas that you find worthwhile with your students and with your colleagues.

Richard Wilson
Chair, Research Committee
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Teaching Listening Skills

Linda Higbee Mandlebaum and Rich Wilson

More time is spent listening (about 50% of class time) than in any other school activity (Herman, 1967; Wilt, 1950). Alley and Deshler (1979) noted that the listening environment becomes more complex as students move into the adult world and that listening skills are also important to success in work and social environments. However, despite the significant amount of time all of us engage in listening and the importance of being good listeners in and out of school, very little time is devoted to listening instruction (Devine, 1978; Pearson & Fielding, 1982).

Researchers have found that the listening skills of students with learning disabilities (LD) are less developed than those of nonhandicapped peers (Deshler, Kass, & Ferrell, 1978). Further, listening and intelligence have been found to be correlated; also, listening skills can be measured objectively, taught systematically, and remediated successfully (Devine, 1978). In addition, many low-achieving students prefer to learn by listening, whereas many able students prefer to learn by reading (Burns & Browman, 1983). The purpose of this chapter is to provide teachers with information and activities to improve the listening comprehension of students with learning disabilities.

Steps in the Listening Process

The act of listening involves three steps (Taylor, 1973; Wolvin & Coakley, 1985). At the first step, *hearing*, the listener receives the aural stimuli. The second step, *attending*, involves two skills: selective attention and sustained attention (Wallace, Cohen, & Polloway, 1987) – both areas where handicapped students have demonstrated deficiencies. The third step consists of *assigning meaning to and understanding the message* (i.e., using cognitive strategies to recognize and remember what is said, categorize information, compare it to what is already known, and sequence and interpret the information).

Purposes for Listening

Wolvin and Coakley (1979, 1985) and Wallace et al. (1987) identified five purposes for listening: DISCRIMINATION – distinguishing and identifying words and sounds; COMPREHENSION – identifying literal (e.g., getting the main idea) and interpretive (e.g., drawing inferences) information; THERAPY – helping a person work through a problem (e.g., reflective listening); ANALYSIS – comparing, contrasting, predicting outcomes, generalizing, and hypothesizing; and APPRECIATION – listening for pleasure.

Effective Practices in Listening Instruction

Use these techniques to improve listening skills:

1. Provide students with direct instruction in listening strategies (Lundsteen, 1979; Tompkins, Friend, & Smith, 1984).
2. Establish a lesson goal so that students will know what is expected (Polloway & Smith, 1982; Wallace et al., 1987).
3. Ensure that students are actively involved with and acting on the information they have heard (Faix, 1975; Hennings, 1986; Robinson & Smith, 1981; Wallace et al., 1987).
4. Plan purposeful listening activities that relate to other curriculum areas (Burns & Broman, 1983; Hennings, 1986).
5. Organize messages and repeat important information (Robinson & Smith, 1981; Wallace et al., 1987).
6. Give information in short segments using visual aids for emphasis (Robinson & Smith, 1981; Wallace et al., 1987).
7. After a listening activity, ask questions that require more than recalling facts (Lange, 1982).
8. Act as a model of good listening behavior and use peer models (Robinson & Smith, 1981).
9. Involve students in rehearsing, summarizing, and taking notes on information (Robinson & Smith, 1981).
10. Practice common nonverbal messages and engage students in role-playing activities (Robinson & Smith, 1981).
11. Use a Directed Listening Activity format (see below) when teaching (Alley & Deshler, 1979; Cunningham & Cunningham, 1976).
12. Use verbal, pictorial, or written advance organizers to cue students when to listen (Lenz, Alley, & Schumaker, 1987).
13. Provide prompts within lectures to notify students that the information about to be presented is important enough for them to remember or write down (Wilson & Wesson, 1986).
14. Teach students to attend to teacher cues that denote important information (Hoskisson & Tomkins, 1987).
15. Before beginning a listening activity (or any activity), review the rules for good listening behavior (e.g., sit quietly on the rug, pay attention to the story) (Rosenberg, 1986).
16. Involve students in a wide variety of listening skills that relate to skills they will need outside of school (Wallace et al., 1987).
17. Use teacher questions and prompts to cue students to respond, for example, "Tell me more" (Wong, 1980).
18. Teach students to use a self-questioning technique while listening (Shoop, 1986).
19. Teach students to use a self-instructional strategy to monitor listening (Elliot-Faust & Pressley, 1986).
20. Teach sentence-combining, a grammatical skill, to enhance listening comprehension (Straw & Schreiner, 1982).
21. Teach students to use visual imagery while listening (Miccinati, 1981).

Listening Assessment and Instruction

Listening lessons and procedures that incorporate the principles of effective instruction are described below.

Data-Based Listening Comprehension Program

This procedure is designed to assess and subsequently teach listening comprehension after teachers have documented to students the necessity of teaching such skills (i.e., determined that the student has a deficit and linked listening instruction to critical academic skills such as reading comprehension or notetaking).

1. Determine the student's optimal instructional level in listening comprehension by administering an Informal Listening Inventory (ILI), an instrument much like an informal reading inventory. An ILI uses

grade-level passages from a reading inventory, but instead of a student reading passages and answering questions, the teacher reads a passage (while the student listens) and the student answers the questions. Have a student listen to three or four 200-word passages from each grade level and answer 10 comprehension questions (five literal and five inferential) after each passage. The optimal instructional level is represented by the grade level of the passages where student responses fall below 90% and above 70% correct. Typically, the optimal listening instructional level is the same as or higher than the optimal instructional level in reading; however, students with severe listening deficits may test lower.

2. Set aside a 15-minute period to teach listening comprehension. Locate several 400- to 500-word stories at an appropriate difficulty level and write 10 literal and 10 inferential questions for each passage.

3. Teach each listening lesson much as you would teach a reading comprehension lesson. Begin with an advanced organizer and a motivational statement, read the passage, then ask the questions. Provide feedback to incorrect responses by demonstrating how a successful listener would have reached a correct answer. For factual questions, rereading the appropriate passage segment is usually helpful. For inferential questions, reread the relevant segments and walk the student through the steps needed to attain comprehension (usually accomplished by integrating passage information with other related knowledge).

4. Record and graph the correct responses to both question types as in Figure 1.

5. Analyze the results and make instructional decisions based on student performance by using the 70% to 90% correct guidelines discussed previously. If a student answers less than 70% correct for several days, lower the grade level of the material. If, on the other hand, a student answers 90% or higher for a week or more, move to more difficult material. Teachers also can note difficulties in literal and inferential comprehension and take appropriate remedial action.

Directed Listening Instruction

These lessons are appropriate for enhancing *sustained listening* (e.g., when a teacher is reading or telling a story). Each lesson involves prelistening, listening, and follow-up activities.

During *prelistening*, prepare students by reviewing good listening behavior and by using a motivational technique such as asking a question that will be answered in the story. Next, introduce new or difficult concepts and words. Finally, establish a purpose and an advance organizer for listening by asking students to attend to particular events in a given story.

Stage 2, *listening*, requires students to listen for the purposes established during prelistening. Stop in appropriate places to ask questions, allow students to make predictions, or alert students to important information. It may be necessary to reread material for clarification.

Finally, provide *follow-up activities* to expand and apply what was learned during listening. Involve students in discussing, reading, and/or writing about what they heard or painting, drawing, or dramatizing a lesson.

Summary

The purpose of this chapter was to provide teachers with activities to improve the listening skills of students with learning disabilities. Typically, listening skills, which are critical to efficient student learning, are not systematically taught, and many students with learning disabilities do not acquire these skills without specific instruction. It is our belief that practitioners who teach listening skills (we hope they use several of the ideas presented here) will enhance the overall school and later life performance of their students.

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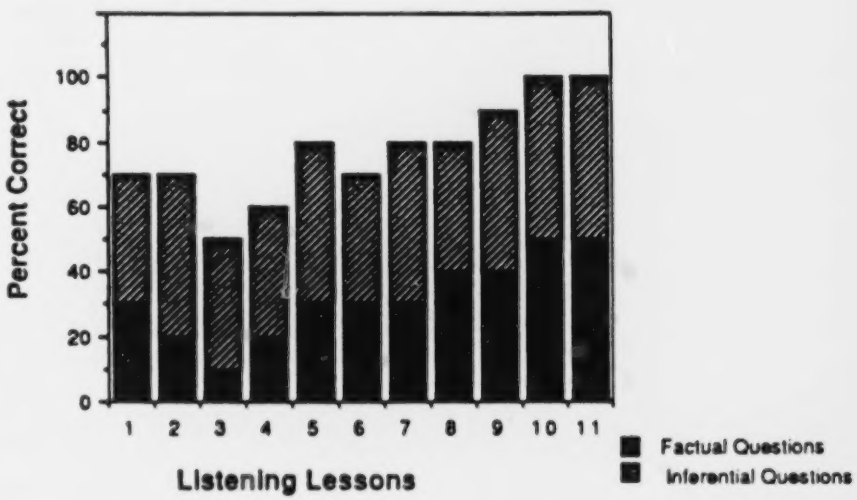

Figure 1. Results of a listening program.

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Authors' Note:

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Study-Skills Instruction for Students with Learning Disabilities

Deborah Gartland

Study skills represent basic learning tools that, when developed and appropriately applied, enable students to acquire information effectively, efficiently, and independently. This chapter will focus on the importance of study-skills instruction in the educational program of students with learning disabilities and provide teachers with pragmatic strategies for improving study skills.

Askov and Kamm (1982) pointed out that being able to learn on one's own is particularly important today, given the wealth of media sources that make vast amounts of information easily accessible. Nonhandicapped students who have not been specifically taught to use study skills do not pick them up on their own in elementary or secondary school (Askov, Kamm, Klumb, & Barnette, 1980). Given these findings related to nonhandicapped students, study-skills instruction becomes an even more critical component of the educational program for many students with learning disabilities who experience difficulty acquiring content area knowledge due to their learning disabilities.

EFFECTIVE PRACTICES IN STUDY SKILLS INSTRUCTION

Until recently, few investigations had examined the teaching of study skills. Students with learning disabilities *can* be systematically taught study skills that contribute to increased academic achievement and lead to independent learning. One successful instructional program is Project P.A.S.S.: Promoting Academic Survival Skills (Gartland, 1988). Components of Project P.A.S.S. include study habits, time management, organizational skills, note-taking skills, study skills systems, and test-taking skills. Each will be discussed below, along with recommended teaching strategies.

During successful acquisition of study skills, students pass through a development and an application stage. At the middle-school level, when study skills are being developed, instructional emphasis is on teacher-directed activities. Later, in high school and college, all students, including pupils with learning disabilities, must take more responsibility for learning. The teacher should promote independence.

In the development stage, the principles of direct instruction are appropriate. As a result, lessons should proceed in the following manner:

1. Based on assessment data specific to the student's strengths, weaknesses, and needs, identify a study skill to be learned.
2. Discuss the purpose of and the rationale for selecting the skill with the student.
3. Through teacher-directed skill instruction, provide a model of appropriate use of the skill.
4. Provide the student with plenty of guided practice.
5. Carefully monitor student progress, provide immediate and specific corrective feedback, and review skills when necessary.

As the student with learning disabilities becomes proficient in a given skill during teacher-directed activities, the instructional focus should shift to help the student identify *when* to apply the skill in order to be successful as an independent learner.

Study Habits

Mainstreamed students with learning disabilities are often overwhelmed by the number and variety of work materials and assignments encountered in the regular class. In order to overcome roadblocks to successful studying, students need to take a critical look at their general study habits. Haburton (1981) emphasized the need for students to develop their own personal study system by using a problem-solving procedure to identify and remediate deficiencies in study habits. Haburton's six steps involved in developing a personal study system include:

1. Teach students to identify and prioritize major study problems, and select one to work on.
2. Teach students to determine the goal or outcome they hope to accomplish.
3. Teach students to examine the factors that contribute to the problem that they will need to consider in reaching a solution.
4. Teach students to generate corrective strategies that will work best for their particular study problem.
5. Teach students to implement the strategies selected from the analysis.
6. Teach students to evaluate the study plan and revise when necessary.

Time Management

During the elementary-school years, time students spend in instructional activities is often controlled by teachers. Therefore, it may not be until they reach middle school or high school that students are expected to shoulder some of the responsibility for their use of time. For students who continue to postsecondary programs, time management is one of the deciding factors in success or failure. Due to the nature of their disability, many students with learning disabilities fail to develop adequate time-management skills. Consequently, unless they are instructed in strategies for using their time more effectively, this problem can negatively affect all aspects of their lives. Teachers can help foster time-management skills using these strategies:

1. Teach students to develop and use schedules. For example, whole-semester, monthly, weekly, daily, and even hourly schedules can display priorities based on short-term and long-term assignments. Students can contract with themselves or with their friends, teachers, or parents to be rewarded contingent upon successful adherence to their schedules.
2. Teachers can help students identify their best times for studying, best environments in which to study, and most difficult subjects, so they can arrange their studying accordingly.
3. Students can be taught to divide large segments of study time into smaller segments, taking breaks and rewarding themselves as they proceed. Teachers can instruct students in how to set study

objectives so they have a target to aim for each study period, rather than studying for a certain amount of time.

Organizational Skills

Lack of organizational skills is a pervasive characteristic among students with learning disabilities. Teachers may use the following suggestions to help students improve in this area.

1. Develop checklists to prompt students to bring textbooks, course outlines, notepaper, writing utensils, and other appropriate materials to class. A similar checklist can be used during designated study sessions to help students use their time more efficiently.
2. The following types of information can be typed, photocopied, and attached to each of the student's notebooks: classes are held when, in which rooms, buildings, and with which teachers; where and when teachers are available to help outside of class. Some students may benefit from school or campus maps with highlighted landmarks.
3. Many students with learning disabilities may need help in setting up a notebook system containing notepaper and separate folders for handouts for each class. A checklist can be developed to help students systematically analyze course requirements and evaluation procedures for each class so priorities can be set.

Notetaking

As students progress through middle school, high school, and postsecondary education, they are increasingly expected to gain skills and content-area knowledge through information presented via class lectures and independent use of technical reading materials. Many students with learning disabilities have difficulty taking proper advantage of lectures and independent readings. An inability to identify and discriminate between important and less important information and between concepts and details often contributes to their difficulty. A number of strategies can help overcome such problems.

1. Students can be taught to be *active* listeners and readers, rethinking, rewording, and reorganizing content so it makes sense when they return to their notes.
2. Students can be taught mapping, a method of illustrating the relationship among concepts and between concepts and details using a graphic representation, such as a flow chart or a Venn diagram.
3. A number of notetaking systems can be used, such as the Guided Lecture Procedure (Kelly & Holmes, 1979) or the Cornell System (Pauk, 1984). Additionally, a notetaking system can be tailor-made to a student's strengths and weaknesses. For example, a checklist can prompt the student to review notes from the previous class, to divide the notebook pages into "concepts," "details," and "vocabulary" columns, to note the objectives of the lesson, to use abbreviations, and to skip lines at the end of each idea to be filled in after class.

Study Skill Systems

A number of study skill systems have been devised to enhance both comprehension and retention of reading materials in various content areas. An elaboration of the systems presented here as well as other systems can be found in Cheek and Cheek (1983) and in Roe, Stoodt, and Burns (1987).

1. SQ3R (Robinson, 1962) is the oldest and best known systematic study procedure. It can be applied to English as well as content-area reading materials. A modified, simplified strategy that is particularly appropriate for students with learning disabilities is PARS – *P*review, *A*sk questions, *R*ead, *S*ummarize, developed by Smith and Eliot (1979).
2. EVOKER (Pauk, 1963) was developed to assist students in reading prose, poetry, and drama. It involves *E*xploring the passage for overall messages, studying key *V*ocabulary words, *O*rally reading, locating *K*ey ideas, *E*valuating how vocabulary words and key ideas relate, and *R*ecapitulating by reading the passage.
3. SQRQCQ (Fay, 1965) is a strategy to aid students in reading mathematics word problems, an area of particular difficulty for many students with learning disabilities. The student first *S*urveys the problem, decides what *Q*uestion is being asked, *R*eads for details, *Q*uestions what operations should be used, *C*omputes the operations, and finally *Q*uestions whether the answer seems logical.

Test-Taking Skills

Most students with learning disabilities have experienced the frustration of feeling confident that they know the material going into a testing situation after spending many hours studying, only to discover later that they scored poorly on the test. Inadequate test-taking skills may account for part of this problem. In some situations, modifications of the testing procedure are allowed, depending on the nature and the degree of the student's learning disability. However, many students may not be afforded such modifications. Listed below are ways in which a teacher can help prepare students with learning disabilities be better test takers.

1. Before the test, the student should find out about the test format and point distribution. Notes should be complete and students should double-check content that is unclear. The content should be organized in topics with detailed outlines and summaries. A studying schedule that ensures distributed practice should also be mapped out and practiced.
2. Test-taking systems such as the PORPE (Simpson, 1986) and SCORER (Carman & Adams, 1984) can be taught. The former helps students prepare for essay tests by *P*redicting potential questions, *O*rganizing information, memorizing through *R*ehearsal, *P*racticing writing answers, and *E*valuating essays. SCORER helps students take objective tests by teaching them to *S*chedule their time, look for *C*lue words, *O*mit difficult items until easier ones are answered, *R*ead items and directions carefully, *E*stimate what the most plausible answer might be if unsure, and *R*eview their work if time permits.
3. During the test, students should employ relaxation techniques, when needed, and concentrate on doing their best rather than being concerned about other students. Students should underline key phrases in questions and plan before writing, using an outline of major points to be included.
4. When the test is returned, the student should read any comments carefully to understand where mistakes were made. By analyzing errors to discern patterns of strengths and weaknesses, the student can make adjustments in study habits.

SUMMARY

Study-skills instruction is critical for students with learning disabilities who do not generally acquire these skills incidentally. The strategies discussed here were designed to help teachers improve the study skills of students with learning disabilities. Components of a successful study-skills instruction program were discussed, including study habits, time management, organizational skills, note-taking skills, study skill systems, and test-taking skills. Systematic instruction in the development and application of these skills is essential in order to help students with learning disabilities improve academic achievement and acquire information during their school career and throughout life.

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Attention-Deficit/Hyperactivity Disorder: Management and Intervention Approaches for the Classroom Teacher

Audrey E. Ellenwood and Douglas Felt

A child with an attention-deficit/hyperactivity disorder (ADHD) can have a negative effect on the total classroom environment, on peers, on the child's academic/social progress, and on the teacher's management skills. In an effort to deal with the special issues of a child with ADHD, classroom teachers may unconsciously change from engaging in positive interactions with the hyperactive child to using negative commands, disapproving nonverbal behavior, and increased punishment methods (Peters, Allan, & Horvath, 1983).

Children with a specific learning disability (SLD) often demonstrate many of the same symptoms as children with ADHD (Allen, 1986). The exact relationship between SLD and ADHD symptoms is difficult to establish, given the looseness of both definitions. For example, Holborrow and Berry (1986) reported that 41% of children identified with learning difficulties also had ADHD symptoms. In addition, underachievement is closely associated with poor attention, impulse control, and concentration.

The purpose of this paper is to provide educators with an understanding of the child with ADHD and thereby facilitate the development of classroom interventions for enhancing teachers' management skills.

Definition

Although many scientists, clinicians, and physicians agree on the major symptoms of ADHD and recognize the existence of the disorder, no single definition has been uniformly accepted (Hartledge & Telzrow, 1982). In 1987, the American Psychiatric Association postulated that attention-deficit disorder and hyperactivity represent a common etiology and outcome (Barkley, 1981). The 1987 revised version of the *Diagnostic and Statistical Manual of Mental Disorders- Third Edition* (DSM III-R) has reclassified the disorder into one general category, attention-deficit/hyperactivity disorder (ADHD). For the purpose of this article, the DSM III-R definition has been adopted.

ADHD Classroom Symptoms

The primary characteristics of an attention deficit/hyperactivity disorder include lack of self-sustained vigilance, distractibility, impulsivity, and deficits in rule-governed behavior. Typically, these symptoms occur prior to age 7 and last longer than 6 months. Children with ADHD often display irritability, explosiveness, and insensitivity to most social situations. These characteristics are not primarily due to retardation, sensory handicaps, emotional disorder, or emotional lability.

When suspecting ADHD, the classroom teacher needs to diagnose thoroughly, record, and monitor the symptoms being displayed prior to suggesting to the child's parents that professional assistance be sought. In addition, a multidisciplinary approach to assessment of children suspected of having ADHD is highly recommended.

Management and Intervention Skills for Teachers

Coping rather than curing appears to sum up the treatment approaches most commonly utilized by classroom teachers in dealing with ADHD. Thus, the three most widely employed and well-researched interventions include behavior management, cognitive-behavioral modification, and drug therapy. Each of these techniques will now be described.

Behavior Management Approaches

Educational research has shown that behavior management can be as effective overall as pharmacological interventions (McDonald, 1978). Specifically, behavior management involves judicious application of both positive and negative consequences to specific behaviors that have been targeted for change.

A behavior intervention plan allows teachers to identify, monitor, and alter specific problem behaviors of the child with ADHD. When setting up a behavior intervention plan, the teacher should utilize the following format for *each* identified behavior:

1. Define the exact problem behavior in observable, concrete terms.
2. Determine the severity and importance of the behavior.
3. Identify the frequency (per minute, day, etc.) of the target behavior.
4. Devise a plan for the target behavior. Determine which rewards could be given for improved performance.
5. Set modest goals and determine performance level required to receive reinforcement.
6. Evaluate the results of the intervention.
7. Determine if modifications are needed.

As the early objectives are reached, the standards of success can be increased; however, they should be held generally constant over a period of time (e.g., 2 weeks). As children with ADHD quickly become saturated with established reinforcers, reinforcers must be varied. In addition, reinforcers must be chosen carefully to ensure they are powerful motivators for a given child.

Specific behavior management approaches that have been demonstrated to be effective include:

1. ***Token Economy***—Student is provided chips, points, stars, and so forth for successful performance of a target behavior that has previously been identified and discussed with the child. Tokens can be dispensed based on the number of times the task is successfully completed.

   Sample use:

   A student in Mrs. Jones's class frequently fails to complete or turn in his homework. Mrs. Jones devised a plan whereby the student receives one poker chip to be put in his private bank for each paper turned in on time. The student may eventually purchase privileges at home (e.g., staying up late, watching TV).

2. ***Contingency Contracting***—For older students, a simple contract can be developed that describes the desired behavior and the positive consequences that will occur if the behavioral goal is obtained.

Sample use:
Sam's GOOD CITIZEN CONTRACT

I think that I can complete nine out of ten classroom assignments this week. If I do, I will get two free homework passes that allow me to skip homework. My teacher will help me by reminding me of this contract once a day and praising me as I get closer to my goal. (Student and teacher both sign contract.)

3. ***Time Out***—Brief periods of time away from reinforcing stimuli in the classroom can be effective for decreasing children's negative, attention-seeking behaviors.

Sample use:

Mrs. Smith places John in the thinking chair for a few minutes every time he calls out without raising his hand.

4. ***Good Behavior Games***—Teachers can harness peer pressure if students are carefully challenged to compete using intraclass grouping (e.g., rows) and privileges as payoffs (e.g., lining up first).

Sample use:

In Sally Kline's class, students compete by row to see which group is ready first to start the next lesson. The best row each day gets special privileges the following day (e.g., lining up early, shorter assignments).

5. ***Daily Report Cards***—Parents can most effectively support teachers if they have input on the overall behavior management plan. Teachers who use the daily report card system complete a daily rating scale (e.g., 1- to 5-point scale on out-of-seat behavior), which is sent home with the student. Parents, in turn, provide immediate, positive reinforcement, as appropriate.

Sample use:

Mr. and Mrs. Sanborn receive a daily report card on their son's calling out in class. The teacher uses a Likert-type scale (Very often 0, often 1, occasionally 2, rarely 3, never 4). The rating score is used to assign points, which the student subsequently uses to buy privileges at home and in school.

6. ***Limit Setting***—Teachers employing aversive repercussions for inappropriate student behavior should follow such standard procedures as posting rules in the classroom, giving clearcut warnings for rule violation, and having a hierarchy of escalating negative consequences.

Sample use:

Mrs. Bender has posted a list of rules in her class that cover the behaviors she expects from her students. Students choosing to violate a rule are given one warning. The second rule infraction on the same day results in a preplanned consequence.

Cognitive-Behavioral Management Approaches

Teachers can improve the behavior and academic success of students with ADHD by employing a set of techniques designed to facilitate self-awareness. Generally, performance has been shown to improve when teachers:

1. Repeat instructions
2. Make instructions explicit
3. Encourage self-questioning about a given task
4. Make up and rehearse self-rules, and arrange learning situations to compensate for rule-governed deficits.

Children with ADHD often do not think about the required task before taking action in both academic and social situations. The following interventions are designed to improve students' awareness of their environment and assist them in designing and choosing plans for dealing more effectively with school and social situations.

1. ***Self-Monitoring***—Students can be trained to monitor and record their own behaviors (e.g., calling out in class without permission). The child is taught to make a mark on a sheet of paper each time he engages in the inappropriate behavior. The student's recording can be summarized and compared to a control tally that would provide feedback on the student's progress.
2. ***Self-Talk***—Students can be taught to ask themselves guiding questions (e.g., Am I paying attention now?) that are designed to raise awareness of attentional status, behavior, and work output. The teacher periodically provides verbal or nonverbal cues to stimulate self-questioning by the student. For example, Kirby's (1985) *Calm Card* may be attached to the student's desk to serve as a self-reminder:

   C)alm yourself down.
   A)lways think of a plan first.
   L)et your thoughts help you work.
   M)ake sure you reward yourself.
3. ***Positive Self-Statements***—Students are taught to repeat subvocalized statements that have been predesigned to deal with an identified problem area (e.g., "I can ignore others"—for a student who finds it difficult to ignore others).

Psychopharmacological Intervention Approaches

Medication is the most frequently used (and perhaps overused) intervention for attention-deficit/hyperactivity. Drugs are often beneficial for children with ADHD when monitored carefully by parents, teachers, and physicans. For example, Renshaw (1974) listed the following positive effects of drug intervention for children with ADHD:

- more goal-directed activity
- better voice modulation
- enhanced perceptual, cognitive, performance learning
- better coordination (handwriting, drawing, gym, sports)
- improved personal neatness
- mood improvement; less negativistic, more pleasant, friendlier

In spite of the positive attributes of stimulant drugs, however, a number of negative side effects and limitations occur for some children (e.g., irritability, headaches, decrease in appetite) (Gadow, 1986).

The teacher plays a key role in medical management. Logistics should be worked out with the parent and the physician to establish who will administer the medication and when. Also, communication with the physician must be maintained to assist in monitoring the dosage level as well as any side effects of the medication. To assist the teacher in monitoring side effects, Gadow (1986) developed the following *Stimulus Side Effect Checklist:*

Summary

The best medically based way to understand attention-deficit/hyperactivity disorder is to view it as a collection of symptoms on a continuum rather than as a discrete medical disorder. To help a child with ADHD maximize his or her potential within the classroom, the teacher must possess a thorough understanding of the condition and its symptoms and complex identification, and be capable of using effective management/intervention techniques. The success of a child with ADHD is highly influenced by the match between the child's environment and his or her unique needs. A teacher can play a vital role in enhancing the self-concept of the child with ADHD through intervention/management skills that lead to greater academic success for the child, and, in turn, improved peer relations. The final result is a more positive classroom environment benefiting the teacher and all students.

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Stimulant Side Effects Checklist

Item	Not at all	Just a little	Pretty much	Very much
1. Irritable				
2. Unusually cheerful or happy				
3. Sad, weepy, cries, unhappy				
4. Spaced out, blank stares				
5. Overly quiet				
6. Difficulty falling asleep (parent)				
7. Decreased appetite (parent)				
8. Tics, twitching, fingernail biting, unusual arm or leg movements				
9. Complains about headache, upset stomach, dizziness, and so forth				
10. Anxious				
11. Lethargic, drowsy				
12. Uninterested in others, stays by himself/herself				
13. Unusually talkative				
14. Other (please specify)				

Comments: _____

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* K. D. Gadow, 1986.

Teaching Social Skills to Students with Learning Disabilities

Craig R. Fiedler and Berttram Chiang

Social-skill deficits among students with learning disabilities have been reported extensively in the professional literature. *Social skills* are defined as those interpersonal behaviors that allow an individual to interact successfully with others (Morgan & Jenson, 1988). Recently, the Interagency Committee on Learning Disabilities (ICLD, 1987) proposed a new definition of learning disabilities that specifically includes social-skill deficits as one of seven skill areas in which learning disability may occur. Whereas the notion of social-skill deficits as a primary learning disability is debatable (Gresham & Elliott, 1989), most professionals in the field agree that students with learning disabilities (LD) need training in social skills.

In his review of social-skills training with handicapped children, Gresham (1981) emphasized that physically placing handicapped students in the regular classroom does not necessarily result in an improvement of their social skills. Regardless of whether students' social-skills problems are due primarily to perceptual, cognitive, or affective deficits, systematic and effective social-skill training is vital if students are to succeed in mainstream settings in compliance with the Regular Education Initiative. Attention to social skills is warranted considering that individuals without good social skills are likely to experience problems as children, as well as encountering serious adjustment problems in adulthood (Bornstein, Bellack, & Hersen, 1977).

Despite a considerable body of literature on the importance of including social-skills training as an integral part of the curriculum for students with LD, traditional assessment rarely focuses on adaptive and social coping skills (Bender & Golden, 1988). In addition, interpersonal social-skills are rarely taught directly (Vaughn, 1985), and those responsible for implementing social-skill training are seldom clearly identified on IEPs (Baum, Duffelmeyer, & Geelan, 1988).

This article will focus on (a) assessment and instructional strategies that have been found workable with students with LD; and (b) related issues that need to be addressed as part of social-skills training for students with LD.

WORKABLE STRATEGIES IN SOCIAL SKILLS TRAINING

Assessing Social Competence

Effective social-skills instruction involves social competence assessment. Several approaches exist for evaluating a child's social skills.

Social skills checklist. Individuals with plenty of opportunity to observe a child, in a variety of settings and situations and over a considerable period of time, may provide useful information by rating the child on a number of social skills. Teachers and parents are likely candidates for conducting this type of assessment by responding to a social skills checklist.

Sociometrics. Sociometric information can identify students who experience difficulties in positively interacting with other children. Sociometric information can be gained by two methods: *peer nomination* and *peer rating*. Peer nomination asks students to list a number of classmates according to specific criteria (e.g., who they would like most to (a) play with, (b) do a class project with, (c) sit next to, and (d) invite to a party). The peer rating method, in turn, requires peers to rate every student in the class according to predetermined criteria.

Role-play tests. A less widely used assessment practice consists of asking a student to role-play a hypothetical situation that requires performance of a particular social skill. Obviously, this approach involves an artificial situation; however, teachers are limited by time constraints, and it may be too time consuming to wait for a naturally occurring opportunity to observe a child's social competence in a real-life situation.

Contrived situations. Similar to role-play tests, teachers can systematically arrange the classroom environment to determine how a child might handle a particular situation. For example, to assess a child's skill in sharing and cooperating with others, the teacher might assign the target student and a peer to an art project that requires active cooperation and sharing.

Naturalistic observations. Direct observation of a child in the classroom or other contexts is another useful technique for social skills assessment. The teacher watches the child's behavior at predetermined times or situations and records the observations. This approach can take many forms such as frequency counts, duration recording, interval sampling, or anecdotal records. To get a valid and reliable assessment, the teacher must collect a number of observations across a variety of school settings.

Teaching Social Skills

Preferred practices in many social-skills training programs involve direct instruction. Specifically, direct instruction employs a basic demonstration-prompt-practice teaching format. The following effective methods, associated with the direct instruction approach, have been outlined by Morgan and Jenson (1988).

Instructions and rationales. As with any good instructional strategy, students must be told what they are going to be taught and why it is important to learn a given skill. To enhance students' motivation, it is important that the teacher give specific examples of how they can be more successful in interacting with others once a deficit skill has improved.

Modeling. Demonstrating for a child a particular skill and its component parts has proven an effective way of teaching children (Bandura, 1977). In addition to live demonstrations, modeling can take the form of film or videotape, audiotape, mental imagery, puppets, and books. Goldstein (1981) suggested that modeling is most effective (a) when the model is viewed as being highly skilled, with high status, and of the same sex, age, and race as the learner, and when the model receives reinforcement for the behavior being modeled; (b) when the modeling sequence is clear, detailed, and progresses sequentially from least to most difficult skills; and (c) when the lesson is repetitive, free of extraneous details, and uses more than one model.

Concept teaching. With concept teaching, the teacher presents both relevant and irrelevant attributes of a particular social skill to determine the student's ability to distinguish between examples and nonexamples of the skill behavior. For instance, in teaching the social skill of politeness, the teacher would first demonstrate examples and nonexamples of that skill and then question the student to determine his or her awareness of the distinction between the two categories of behavior.

Role-playing/behavioral rehearsal. This technique affords students opportunities to practice a particular skill after having viewed a skilled model perform the requisite behaviors. The role-playing/behavioral rehearsal occurs under the guidance of the teacher who provides prompts, coaching, and feedback during the training session.

Coaching. In coaching, the teacher gives corrective feedback to students after a role-playing demonstration. This type of feedback may take a variety of forms including verbal, gestural, or physical prompts and cues.

Contingent reinforcement. While acquiring new behaviors, students must be systematically reinforced each time they demonstrate the newly instructed skill. Ultimately, the goal is to wean the student off of any unnatural reinforcement systems and switch to more natural reinforcement (e.g., praise, approval) that is more likely to facilitate maintenance and generalization of newly acquired skills.

Special Tips for Teachers

Systematic approaches to social-skill training range from teaching students to conceptualize alternative solutions to typical problems (Spivack, Platt, & Shure, 1974) to enhancing student motivation to overcome interpersonal problems (Adelman & Taylor, 1982). Depending on students' age levels and given problem situations, teachers may find the following tips useful while implementing social skills interventions:

Use sociodramatics. The teacher reads a familiar story, such as *Snow White and the Seven Dwarfs*, and asks the student with LD to role-play one of the leading characters. By giving students opportunities to portray well-liked characters (e.g., Snow White), sociodramatics may enhance positive social interaction between children with LD and their non-LD peers. It is advisable to have children with LD role-play different characters in the same story to help them understand alternate perspectives.

Involve children with LD in cooperative games. Since play interactions require that participants observe a number of important social rules — turn-taking, sharing, and fair play — by following the game rules, the play activities in which students with LD participate must result in pleasurable as well as positive learning experiences. Group play, by its nature, requires greater peer interaction. Nevertheless, the student with LD must also be given the option to select play partners for group plays or be allowed to engage in solitary or parallel play activities occasionally.

Set up a peer counselor or buddy system to pair the student with LD and a popular classmate. With appropriate pairing, a buddy system can reduce the chances that the youngster with LD develops a school phobia and resorts to truancy or drops out of school. Since children's social interaction skills are best measured by their popularity among peers, and since children with LD are more likely to learn social rules from peers than from other adults, peer counselors can often accomplish significant improvement in the social adjustment of children with LD.

Teach students metacognitive techniques to self-monitor social competence. An initial intervention objective is to increase student awareness of problem situations. After the student with LD has recognized the problem situation(s), he or she may be instructed to use cue cards and verbal rehearsals to guide his or her actions through the problem situation. Alternative solutions to simulated problems and predictable consequences of various actions may also be discussed and/or displayed on a chalkboard or bulletin board.

ISSUES RELATED TO SOCIAL SKILL TRAINING

The following issues relate to social skills training of youngsters with learning disabilities:

1. Most social skills are "opportunity-bound," therefore, systematic assessment of a child's social skills frequently requires his or her reactions to many situations and events occurring at random times during the day. It is difficult to arrive at valid assessment of a child's social competence under artificially created and out-of-context situations. This type of assessment is also difficult because many social behaviors occur infrequently (even for socially competent individuals), making it difficult to gain sufficient opportunities to evaluate a child's skill level. Finally, assessment practices are hampered because many social skills are private in nature. Assessment that is intrusive and invasive of a person's privacy must be questioned for ethical reasons.

2. Communication between home and school through such channels as daily report cards increases the likelihood that students' social growth acquired at school is maintained and generalized in home situations. Conversely, parents can keep the teacher informed of a youngster's potential problems and relate how the child interacts with other family members and children in the neighborhood.

3. Generalization of social skills acquired in role-playing situations to new and preferably natural environments is critical (Schumaker & Ellis, 1982). Blackburn (1989) suggested that teachers use sufficient exemplars for students to practice the appropriate social skill in an LD resource room to ensure generalization to regular classroom settings. That is, repetitive drill and practice serves the same function in social skills training as in academics. For students who are resistant to practicing, the teacher must strive to keep up motivation.

4. It is important that teachers seriously consider the issue of social validity when selecting social skills for intervention (Gresham, 1983). Basically, *social validity* relates to whether or not the instructional goals are significant to others in the child's everyday environment. Specifically, social-skills instruction is not effective unless the new/improved social skills make a difference in the individual's overall functioning.

CONCLUSION

Considerable knowledge about the social-skills deficits of students with learning disabilities has accumulated over the past decade. Since social interaction is so critical to a person's overall development, it is not surprising that social-skills training has become an important topic in learning disabilities. The emergence of various techniques for carrying out effective social skills assessment and instruction represents the culmination of a variety of theoretical developments and empirical research. Our efforts in applying these techniques, particularly during the formative years of early childhood and primary grades, will have a substantial impact on the success of students with learning disabilities in school and society.

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Classroom Management: Preventing Behavior Problems in Classrooms for Students with Learning Disabilities

Mary Curley O'Melia and Michael S. Rosenberg

To many, the term "classroom management" is associated with images of docile students, tyrannical teachers, and sterile settings, where academic achievement takes a back seat to compliance with rules and procedures. Rarely does the phrase invoke scenes of talented teachers and scholarly students engaged in educationally effective endeavors. Nonetheless, when planned and implemented appropriately, management strategies are necessary prerequisites for creative and productive classrooms. Hence, we can operationally define classroom management as the *positive manipulation of the learning environment to promote successful behavior and skill acquisition*.

For the last two decades, levels of student misbehavior and classroom management have been growing concerns for both educators and the general public. A survey of beginning teachers (Veenman, 1984), for example, found that discipline and motivation ranked 1 and 2 among a listing of 24 problems; in 14 of the past 15 Gallop Polls of Public Attitudes about public schools, lack of discipline in schools ranked first among the major concerns facing public schools. Considering the impulsive behaviors and social/emotional deficiencies of many students with learning disabilities, classroom management skills are essential for teachers who work with these students. While there are no special recipes that prevent student behavior problems, certain strategies, if used correctly, will help establish a classroom management regimen that can prevent behavioral distractions and increase opportunities for effective and efficient teaching.

The purpose of this paper is to outline several strategies that can be used by teachers of students with learning disabilities to prevent problem behaviors. Each strategy has a solid data base; that is, applied investigations using these techniques have been reported by researchers and practitioners to have beneficial effects on the classroom functioning of students with mild handicapping conditions. The strategies are presented under three major headings: (a) planning for classroom management prior to the start of the school year, (b) establishing a management plan and implementing it early in the school year, and (c) maintaining the "managed" educational environment throughout the school year.

Planning for Classroom Management

A classroom's physical and aesthetic environment communicates the management style of the teacher. Classrooms for students with learning disabilities headed by an "in-charge" teacher and displaying an orderly climate, high expectations, a system for monitoring progress, and an emphasis on basic skills are most successful in improving achievement (Fafard, 1987).

Room Arrangement

The classroom furniture and equipment should be arranged to facilitate visual monitoring of students from all teaching stations. Evertson, Emmer, Clements, Sanford, and Worsham (1989) noted that it is important that the teacher be able to make a visual sweep of the room to (a) assist students in need and (b) defuse problematic social interactions. Student seating should allow for instructional presentations without major furniture rearrangements or human contortions.

Traffic flow is another aspect of the physical environment that should be taken into consideration. High-traffic areas such as teamwork areas, the pencil sharpener, and the exit door should be free of obstacles and be as widely separated from each other as practical. Many classroom disruptions occur in narrow, congested travel lanes where students bump into furniture or each other. Further, materials and equipment should be kept close to where they will be used, to avoid interfering with the orderly presentation of instruction.

Display Areas

Walls and bulletin boards provide areas to display student work, relevant instructional material, rules, schedules, and other information of general interest. Items chosen for display announce what is valuable; therefore, each presentation must be planned carefully. For example: "Think Snow" on an early September bulletin board may have a temporary cooling effect, but it sends a different message to students than "Reading Can Be Fun." Display space should be utilized to communicate behavioral expectations and pride in one's work and accomplishments.

Class Rules

Rules, stated as positive expectations regarding behavior, should be posted prominently. Worell and Nelson (1974) offered the following guidelines for establishing rules:

1. Select the fewest possible number of rules.
2. State rules behaviorally.
3. Detail clear consequences for both compliance and noncompliance.
4. Ensure that rules are situation-specific.

In addition, students should be involved in establishing class rules and resulting consequences. Also, rules should be flexible so as to allow for changes during the year.

Schedules

Students, particularly those with learning problems, do not adjust easily to unexpected events. Special education teachers will find that time invested in careful scheduling of instructional and transition time pays dividends by lowering the number of occasions of frustration and rates of inappropriate behavior. Classroom events should be scheduled so that enjoyable activities are blended with important tasks that tend to be less enjoyable (Krantz & Risley, 1977).

Grouping Considerations

The way students are grouped influences the behavior of the instructional group and has an impact on the functioning of the whole class. Stainback, Stainback, Etscheidt, and Doud (1986), for example, found that disruptive students displayed fewer inappropriate behaviors when they were grouped with well-behaved students, and that under such an arrangement the group tended to remain well behaved.

Group instruction toward a common goal tends to promote more positive, goal-oriented student behavior than structures in which students work alone or in competitive groups (e.g., Johnson & Johnson, 1984, 1986; Slavin, 1983; Slavin, Madden, & Leavey, 1984; Stainback, Stainback, & Froyen, 1987). Students tend to cause disruptions when they are bored because they already know the material or are frustrated due to deficient prerequisite skills. Differences in entry-level competencies and learning rates constitute the greatest problems in instructional grouping decision making. Cooperative grouping is one method that can be used to alleviate the extreme heterogeneity often found among students with learning disabilities.

Establishing and Implementing a Management Plan

An often-overlooked component of successfully managed classrooms is the manner in which management strategies are delivered. The classroom climate established by the teacher influences students' self-image and expectations for success. A nurturing, productive classroom atmosphere is created through a series of personal and professional interactions among students and the teacher. As noted by Rosenberg, O'Shea, and O'Shea (in press), these interactions reflect a number of intangible (i.e., difficult to operationalize) teacher behaviors, personal qualities, and attitudes that are essential to successful management efforts.

Communicating Respect to Students

Teachers have countless opportunities to let students know that they are valued (DeLuke & Knoblock, 1987). Successful classroom managers use such opportunities to demonstrate empathy and concern for students by actively listening and responding to their verbal and nonverbal messages (Good & Brophy, 1987). Sincere regard for the welfare of each student is demonstrated by (a) listening to the news of his or her personal world with interest and friendly nonjudgment, (b) being acutely aware of changes in manner or demeanor, and (c) understanding the intent of student behavior and putting it into the proper perspective.

Executive Demeanor

Solomon and Kendall (1979) found that effective teachers (a) make themselves the center of attention, (b) teach content in a firm, business-like fashion, and (c) select and direct the instructional activities of the class. This same executive demeanor also serves to reduce the probability of minor behavioral infractions — those events that tend to escalate into major discipline problems. Kounin (1970) identified several teacher behaviors that reduce misbehavior and increase instructional efficiency:

1. "With-it-ness" — A constant awareness of what is going on in the classroom.
2. Overlapping — Attending to more than one issue at a time.
3. Maintaining group focus — Keeping students attentive and involved in the learning task.

Expectations, Credibility, and Dependability

Investigations of teacher expectations of student behavior have shown how negative expectations influence both academic performance and rates of misbehavior. As noted by Rosenberg et al. (in press), several strategies can be used to prevent the occurrence of negative "self-fulfilling prophecies." First, teacher expectations must be presented in a positive, straightforward fashion, including (a) design and implementation of a classwide management system that treats all students equally, (b) formulation and use of positively stated rules, and (c) consistent delivery of consequences for both compliance and noncompliance with the management system. Second, reasonable goals related to student behavior must be developed. Teachers need to possess both a knowledge of and sensitivity to the problems experienced by students with learning disabilities. Third, teachers must convey that a student's history (e.g., teachers' lounge hearsay) will not influence classroom interactions. Students need to recognize that their behaviors will be dealt with in relation to current events and standards rather than their "legendary past histories."

A teacher's credibility and dependability are established when instances of verbal behavior coincide with instrumental behavior. Specifically, once a correspondence between words and actions has been developed, students begin to depend upon the teacher's verbal intentions and, consequently, tend to test limits with less intensity. Conversely, credibility and dependability will not develop if a teacher tends to (a) chat sociably with other teachers during scheduled lessons, (b) challenge inappropriate behaviors with empty threats, or (c) enforce rules selectively.

Employing Effective Instructional Delivery Strategies

Students who are engaged in active learning rarely create distractions or cause disruptions. Research has identified a core of instructional behaviors that reduce instances of misbehavior and facilitate student learning. As summarized by Rosenshine and Stevens (1986), these instructional behaviors, often referred to as "direct" or "structured" instruction sequences, involve six major teaching functions: (a) lesson introduction and review, (b) demonstration and prompting of new material, (c) guided or controlled practice, (d) academic feedback and error correction, (e) independent practice, and (f) within- and end-of-lesson review of subject matter. By structuring lessons to include these teaching functions, instances of misbehavior can be preempted and the achievement levels of students with LD can be maximized.

Maintaining the Educational Environment

Classroom management plans must be maintained throughout the school year. A key element of an effective management plan is consistency. Thus, the phrase "be consistent" — repeated more than the pledge of allegiance itself (Evertson et al., 1989) — remains an important consideration. That is, behavior that is expected on Monday should also be expected every

other school day. In special education settings, as in all classrooms, rules and procedures should only be developed if they are attainable by all students. The following strategies can be used to maintain a successful management plan.

Praise

Praise may be one of the most underused resources available to teachers. Gable, Hendrickson, Young, Shores, and Stowitschek (1983) observed that contingent praise, though shown to be effective in maintaining appropriate behavior, is generally not used with high frequency in special education settings. Further, contingent praise is more likely to be used for correct academic responses than for social behavior. By directing praise to selected social behaviors, appropriate behaviors can be strengthened and the occurrence of new inappropriate behaviors can be preempted.

Success Rate

Academic success can prevent the occurrence of many problem behaviors. Fisher et al. (1978), for example, reported that students who spent more than half their time on high-success tasks obtained higher achievement scores, retained information longer, and maintained better attitudes toward school. Therefore, it is recommended that teachers design instructional materials that allow their students to respond with between 70% and 90% accuracy during both teacher-directed and independent practice session (Brophy & Evertson, 1976; Stephens, 1976).

Increasing Academic Engaged Time

Academic engaged time is the amount of time students spend in academic activities that result in high success responses. When attending to their assigned tasks, students have fewer opportunities to engage in problematic misbehavior. Wilson and Wesson (1986) suggested specific guidelines for increasing the academic engagement time of special education students. During teacher-directed instruction, they recommended that teachers (a) teach more and test less, (b) increase the number of opportunities for students to respond, (c) use signals to maintain attention and prompt responses, and (d) be animated and enthusiastic. Both the level of academic focus and enthusiasm of the teacher will have a dramatic effect on academic engaged time.

Reviewing Rules and Procedures

Clearly and explicitly stated rules and procedures are intricate parts of successful classroom management systems. Few teachers would dispute the need for rules. However, only recently has the need to review and sometimes rehearse rules been noted. In a study with highly distractible students, Rosenberg (1986) found that daily lessons preceded by a brief review of rules were more effective than lessons that did not contain such a review. The daily reviews, which lasted less than 2 minutes, served to increase rates of time on task and opportunities to respond. On days when such reviews were not conducted, on-task rates dropped and fewer opportunities to respond were observed.

Monitoring

Monitoring of student progress gives teachers the opportunity to detect student difficulties before they become serious problems while encouraging students to stay on task. Anderson (1985) observed that a major concern in the maintenance of classroom management relates to keeping students assigned to independent practice activities on task. Thus, Rieth and Evertson (1988) reported that students' on-task behavior is higher during seatwork when their performance is monitored. To effectively monitor students during the independent practice phase of a lesson, it is recommended that teachers (a) circulate and provide assistance and feedback, (b) arrange teaching stations in order to see both the instructional group and the independent practice groups, and (c) hold students accountable for the completion of the assignments.

Feedback

Research on effective teaching has consistently included feedback among the essential teaching behaviors (Berliner, 1984; Brophy & Good, 1986; Rosenshine & Stevens, 1986). Teacher feedback should (a) be immediate and (b) show students how to make corrections. Moreover, corrections should be checked. It is not necessary for the teacher to correct all the work personally for every student, however. Instead, students can exchange papers or check their own work occasionally, or paraprofessionals can correct assignments and return them to the teacher for review.

Cuing

Cuing, the nonverbal communication between teachers and students, can be used as a strategy to encourage participation, discourage disruptions, build self-esteem, promote peer interaction, indicate approval, and maximize cooperation. Effective cues include (a) posted classroom signals, (b) written notes to individual students, and (c) teacher body language (Slade & Callaghan, 1988). A soft hand on the shoulders of daydreaming students will quickly bring them back to the material being presented; similarly, eye contact, gestures, or an amicable smile may discourage playful whispering.

Parental Involvement

Teachers will often find allies in parents who want to be involved in classroom management plans. It is wise to make contact with the home early in the school year before problems arise. Parents will still remember an introductory, informal call by the teacher when calls for behavioral assistance become necessary at a later date. If it becomes necessary to ask for parental assistance in the behavioral classroom management of a child, teachers should (a) eliminate the words "never" and "always," (b) remain calm and professional, (c) balance a negative report with positive observations, (d) promise to call parents within a short period of time in order to communicate progress, and (e) express appreciation to parents for their cooperation.

Summary

This paper presented strategies for preventing management problems of students with LD by positively manipulating the learning environment. Specific suggestions regarding the physical setting included room arrangement, display areas, and class rules. Consideration was also given to the importance of careful scheduling and student grouping in the special education classroom. Repeatedly, the significant role of the classroom teacher as the organized manager of student behavior was emphasized.

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Research-Supported Teacher Activities That Influence the Text Reading of Students with Learning Disabilities

Steve Graham and LeAnn A. Johnson

Students with learning disabilities commonly experience a great deal of difficulty reading assigned materials (Graham, 1983). Teachers can facilitate these students' success by structuring and directing what they do as they read. This paper presents a variety of instructional procedures that have been found to effectively increase the fluency and/or comprehension of assigned reading materials for students with learning disabilities.

SELECTION OF MATERIALS

Basic to an effective reading lesson is the selection of materials that are attractive, well organized, and at the appropriate difficulty level (Graham & Johnson, 1989). For instance, Gickling and Armstrong (1978) found that assigning students reading materials at the students' instructional level, as opposed to frustration-level materials, resulted in improved task completion, on-task behavior, and comprehension. (Graham, 1983, has summarized techniques for determining a student's reading level in relation to specific passages.)

Comprehension can also be influenced by the format or structure used to present information. Gold and Fleisher (1986) noted that inductively organized text (main idea presented later in the paragraph or left to be inferred) was more difficult for students with learning disabilities to recall than deductively organized text (main idea in the first sentence with details following). Because most reading materials contain a variety of formats, teachers may want to instruct students with learning disabilities in the principles underlying the organization of common text structures.

Illustrations are another important consideration when selecting reading materials. While some experts argue that illustrations may have a detrimental effect if pictures present ambiguous or inaccurate information and if students have poorly developed reading skills, others consider illustrations to be beneficial because they make materials more attractive and interesting (cf. Harber, 1983; Rose, 1986; Rose & Robinson, 1984). The most important issue regarding the inclusion of illustrations centers on their quality. For example, Mastropieri, Scruggs, and Levin (1987) stressed that all illustrations are not equally beneficial; specifically, these authors found that pictures containing information relevant to the desired outcome facilitated reading performance.

PREREADING ACTIVITIES

Prior to asking students with learning disabilities to read a given passage, teachers may employ a variety of research-supported activities or procedures to help promote comprehension, fluency, and/or reading accuracy. The activities reviewed below direct or support what the student does during the reading process.

Previewing

Because most students with learning disabilities are not fluent readers and tend to make an inordinate number of oral reading errors, reading out loud can be frustrating for them. One way to improve their oral reading is to expose students to a given passage prior to requiring oral reading. Rose and colleagues (Rose, 1984; Rose & Beattie, 1986; Rose & Sherry, 1984) found that advance silent reading or advance silent reading combined with listening improved the reading accuracy rates of students with learning disabilities.

Activating Prior Knowledge

Having students activate knowledge relevant to the material being read has consistently been shown to improve reading performance (Graham & Johnson, 1989). For example, McCormick and Hill (1984) found that the following three-step procedure improved the comprehension of students with learning disabilities: (a) Students answered teacher-prepared questions designed to relate their background knowledge to the topic of the story and to make predictions about the story; (b) students were directed to weave together their written responses to both the background and the prediction questions; and (c) students were instructed to use both their knowledge and their predictions while reading.

Making Predictions

Asking students to make predictions about upcoming content requires that they draw and test inferences about the text to be read. For example, prior to reading a story, Sachs (1984a) asked students questions that required them to think about the protagonist's goals and plans. Questions included: (a) What is the main character in this story likely to want? (b) How is the main character going to accomplish the goals? and (c) What do you think the main character should do? Having to respond to these questions positively affected students' comprehension.

Setting Goals

Setting and selecting goals constitutes a central process in reading. Research involving students with learning disabilities has focused on the effects of teacher-developed reading goals conveyed to students through either verbal or written prompts. Although traditional purpose-setting aids (e.g., "This is a story about anteaters. You are going to read about how anteaters get food to eat, about their size, and about where they live") have not resulted in improved recall (Pflaum, Pascarella, Auer, Augustyn, & Boswick, 1982), specific cues, such as "remember as much as you can about the story" (O'Shea, Sindelar, & O'Shea, 1987), "read more words correctly," "reduce the number of reading errors," or "answer more comprehension questions correctly" (Roberts & Smith, 1980), have led to improvement on measures directly related to the stated purpose.

Introducing Key Concepts and New Vocabulary

The introduction and discussion of key concepts and new vocabulary represent common prereading activities. Thus, presentation of key concepts and new words prior to reading is generally believed to facilitate comprehension by introducing students to words and ideas that would otherwise be unfamiliar to them in the assigned passages.

Semantic feature analysis concentrates on both key ideas and vocabulary. Using this procedure, the teacher first introduces a chart that lists the major concepts in the passage across the top of the page with the related vocabulary down the side. Major concepts and vocabulary items are then briefly explained. Students rate each vocabulary item in relation to each concept as having either a positive, negative, or unrelated relationship. Finally, students read the passage to verify their rating and to clarify any questionable relationships. This procedure has been shown to have a positive impact on LD adolescents' recall of concepts and understanding of social studies text among adolescents with learning disabilities (Bos, Anders, Filip, & Jaffee, 1985).

Another prereading activity, introducing key ideas, involves analyzing the main concept of a passage prior to reading according to the following steps: (a) The teacher writes out the central concept of the passage, (b) the teacher and students develop a list of examples and nonexamples of the concept, and (c) the students generate a definition of the concept based upon the examples and nonexamples. This procedure has led to increased comprehension, oral reading speed, and accuracy among students with learning disabilities (Sachs, 1984b).

Although activities involving the introduction of key concepts have generally proven successful, merely learning the meaning of unfamiliar words in a story has not resulted in improved passage comprehension for upper-elementary-age students with learning disabilities. The same results have been obtained using a variety of methods to teach vocabulary included in assigned passages (Pany, Jenkins, & Schreck, 1982). However, method of vocabulary instruction does have a differential effect on the learning of word meanings. Thus, the most effective vocabulary-learning procedure investigated to date involves pairing the unknown word with either a definition or a synonym and a sentence containing the target item, followed by considerable practice in producing the correct definition or synonym, respectively (see Graham & Johnson, 1989).

Using Advanced Organizers

Providing an overview of the assigned passage prior to reading appears to be another effective procedure for increasing comprehension. For instance, Idol-Maestas (1985) required students to answer a series of prompts before reading basal stories: (a) What is the title? Does it give a clue as to what the story is about? (b) Look through each page of the story. Skim for clues. (c) Look for important words. Talk about what they mean. (d) Look for hard words. Practice saying them and talk about what they mean. (e) What is the setting of the story? When does it take place? Where did it take place? When directed to use these prompts, students with learning disabilities improved their performance on factual, sequential, and inferential questions.

For science and social studies materials, a different type of advanced organizer has been successfully used with students with learning disabilities. Using this approach, prior to reading, the teacher presents an outline of the important facts and concepts in a given passage as well as the relationships among the various components. Students with learning disabilities who were presented with such outlines scored higher on comprehension measures than students receiving traditionally oriented instruction (Darch & Gersten, 1986).

TEACHER ACTIVITIES DURING AND AFTER READING

Teachers can carry out various activities during and/or after reading to positively affect the performance of students with learning disabilities on assigned materials.

Requiring Repeated Readings

One means of improving reading performance consists of having students read the same passage more than once. For example, O'Shea et al. (1987) found that comprehension and fluency improved when students with learning disabilities read a passage *three* times as compared to a single reading.

Error Correction During Oral Reading

In a review of the research on the effectiveness of teacher-directed procedures for correcting errors during oral reading, Graham and Johnson (1989) concluded that simply supplying students with the correct response after an error has been committed is slightly more effective in increasing correct oral reading than (a) no correction procedures or (b) a phonics correction procedure. Furthermore, the word-supply procedure can be improved by: (a) combining it with isolated or within-phrase drill, (b) rereading the sentence after the error is corrected, (c) reviewing all corrected errors at the end of the page, or (d) telling the student the word meaning as part of the correction procedure.

Although word-correction procedures may result in better word recognition, this approach may be counterproductive to the goal of self-reliant reading (Shake, 1986). Because extensive corrections interrupt the reader's line of thought and perpetuate overreliance on the teacher, it is recommended that teacher corrections center primarily on miscues that disrupt meaning.

Focusing Student Attention on Text Structure

Because most reading materials share a general structure, procedures that use text structure to facilitate comprehension have been a recent focus of research. For example, Idol and Croll (1987) improved comprehension of assigned stories by requiring students with learning disabilities to complete a chart that contained boxes for information on the setting, problem, goal, action, and outcome of the story during and/or after reading. The effectiveness of this procedure was highlighted by the finding that students internalized some of the components of the mapping procedure (i.e., most students maintained acceptable comprehension levels after use of the chart was discontinued).

Inserting Questions into Text

Questions inserted into the text help direct students' attention to specific information and may serve to promote retention of important information. In a study by Wong (1979), a group of students with learning disabilities were asked a single question prior to reading each paragraph in a story.

The students who were asked such questions recalled more of the story than peers who were not queried.

In another study (Wong, 1980), questions were inserted immediately after specific text material. The questions resulted in improved comprehension; hence they may have acted as prompts to remind students to apply constructive processing strategies.

Asking Postcomprehension Questions

Asking comprehension questions immediately following reading and encouraging students to "look back" in the text to locate the correct answers to missed questions is a common teaching practice. In a recent study by Davey (1987), poor readers were asked postpassage questions under two conditions: text lookbacks allowed and text lookbacks not allowed. Students correctly answered more questions requiring a written response when postpassage questions and text lookbacks were paired; however, text lookbacks did not affect performance on multiple-choice questions (Davey, 1987).

Text Summarization

Summarizing text has consistently been shown to result in improved recall of written content (Graham & Johnson, 1989), even when students are directed to use very simple forms of summarization. For instance, Jenkins, Heliotis, Haynes, and Beck (1986) inserted a lined space after each paragraph of a story and asked students with learning disabilities to write a brief sentence summarizing each paragraph after reading it. The restatement condition resulted in superior comprehension performance compared to control conditions.

Reinforcing Specific Reading Behaviors

Relatively few studies have examined the effect of contingent reinforcement on improving the reading performance of students with learning disabilities. Administering reinforcement to poor readers contingent either upon comprehension or oral reading performance has led to improvement in answering passage questions and oral reading accuracy, respectively (Jenkins, Barksdale, & Clinton, 1978). Swanson (1981) also found that a combination of self-recording and reinforcement resulted in improved comprehension, silent reading rate, and oral reading accuracy when each was targeted for intervention. Improvements in oral and silent reading behaviors had only marginal effects on the comprehension of students with learning disabilities in these two studies. Therefore, the reading task to be reinforced should be chosen with the end goal in mind.

CONCLUSION

The activities described here illustrate many promising ways in which teachers can facilitate fluency and comprehension. These procedures, which have proven effective specifically for students with learning disabilities, form a practical basis for teachers to use in designing effective lessons.

A broad variety of teacher-directed activities can have a powerful effect on pupil pursuits during learning (Graham, 1985). Consequently, a reasonable combination of several of the activities presented above should prove advantageous. Further, although teacher-directed activities are likely to produce immediate effects on student performance, they may have limited long-term effects. That is, once teacher cues or supports are withdrawn, student performance may not remain at the same level. Consequently, teachers must help students internalize the powerful components built into teacherdirected activities.

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Computer-Assisted Instruction for Elementary School Children with Learning Disabilities

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The goal of this article is to describe instructional practices that facilitate effective use of computer-assisted instruction (CAI) for elementary school students with learning disabilities (LD). Recommendations, based on the effective schools literature, are suggested. Basic-skills applications of CAI are emphasized because of their instructional suitability for students with learning disabilities.

CAI IN SCHOOLS

Evaluating computer use in American schools, the federal Office of Technology Assessment found that between 1.2 million and 1.7 million computers are currently available to students, about twice as many as reported 5 years ago (*Power On*, 1988). These figures average to approximately one computer for every 30 students. Computers tend to be (a) more accessible to secondary students, (b) located in more affluent school districts, and (c) less available to mildly handicapped students in mainstream classes. Other findings show that applications vary within and between school districts. For example, elementary CAI typically includes the following applications: drill-and-practice (D & P) programs to build basic skills (e.g., sight words and math facts); tutorials to provide sequenced instruction alone in an academic area (e.g., reading comprehension) or, integrated with D & P, to introduce a skill and to build fluency; simulations to demonstrate consequences of decisions without risk (e.g., health and diet or ecology software); microcomputer-based laboratories to measure physical phenomena (e.g., reaction time and temperature); cognitive development programs to enhance thinking skills (e.g., problem solving); tool programs to assist in academic work (e.g., word processing); and programming to teach logical sequencing and consequences (e.g., LOGO). Despite the range of CAI applications, elementary students in general, and academically deficient students in particular, are mainly exposed to D & P applications.

CAI RESEARCH SUPPORT

Early reviews have supported the use of CAI in an augmentative role rather than as a stand-alone instructional method (e.g., Edwards, Norton, Taylor, Weiss, & Dusseldorp, 1975). Several studies indicated greater benefit for lower ability level students when D & P applications were used.

Kulik, Kulik, and Bangert-Drowns (1985) evaluated 32 CAI studies conducted with elementary school children. Of the 28 studies that used D & P or tutorial applications, Kulik et al. found that achievement benefits favored the CAI groups in every case. The authors reported that "68% of the students from classes outperformed the average student from the control class" (p. 68). Of particular interest to practitioners is the finding that low-aptitude and primary-grade students benefited from the D & P computer interventions more than high-aptitude and middle-grade students, respectively.

Although some critics consider D & P basic-skills programs a narrow use of computers, two aspects of this type of application warrant consideration. First, basic-skills fluency is a traditional goal of the elementary curriculum, especially for students with LD. Second, based on extensive research, D & P software is effective when used to augment teacher-directed instruction (TDI).

Caution!

Despite empirical support for CAI, critics warn that these findings be interpreted with caution because the research has tended to be unsystematic and methodologically weak. For example, Roblyer, Castine, and King (1988) noted that only 82 of 200 studies demonstrated sufficient data and/or methodological soundness to warrant inclusion in their review of CAI literature.

The amount of actual student involvement with computers has been limited in some studies, making it impossible to determine if benefits otherwise attributed to CAI are due to novelty effects. Another problem in many studies stems from inadequate descriptions of treatments. For example, comments such as that half the students were taught with "conventional teaching methods" while the other half were taught using CAI exclude functional comparisons. Finally, software and hardware specificity must be weighed. Kulik et al. (1985), for example, tempered their positive review of CAI for elementary-school children by noting that effectiveness "rests on specific computers used in specific ways for specific purposes" (p. 72).

An estimated 10,000 software products are now available to educators (*Power On*, 1988), many of them not based on sound pedagogy (Bialo & Erickson, 1985; Woodward et al., 1986). To insure effective instructional results, practitioners must remain the ultimate judges of CAI's utility for their students with LD, a role few feel prepared to assume. However, special educators have been trained to use effective teaching practices. Applying these methods to CAI will increase the likelihood that effective use of computers will follow.

EVALUATING CAI FOR USE WITH STUDENTS WITH LD

Clark (1983) argued that the effectiveness of CAI has more to do with the application of proven instructional principles than with technology. These principles have been formally identified in research on effective schools (e.g., Rosenshine & Stevens, 1986), including academic learning time (ALT) (e.g., Arehart, 1979) and direct instruction (e.g., Carnine, 1981). With a base in the effectiveness literature, two questions will be posed to assist practitioners in choosing and implementing the best CAI applications for students with LD. The first question focuses on the characteristics that make courseware suited to student needs; the second is directed toward the practitioner's role in effective CAI.

1. Does the courseware engage the student in "successful" learning?

Studies indicate a positive relationship between students' learning and ALT (the

amount of time students are actively and successfully [only committing occasional errors] involved in learning). Consequently, practitioners are advised to determine whether or not courseware increases student success and engagement. But how can teachers predict the likelihood of successful involvement? Several variables associated with student performance are outlined below to assist practitioners in answering this question.

Pacing. Research supports rapid pacing for basic-skills instruction (Brophy & Good, 1986). Pacing is facilitated if the skill-building courseware is not encumbered by too many menu selections. In addition, pacing must be rapid enough to maintain attention, but not so fast that it discourages students. Ideal courseware permits practitioners easily to adjust the delivery to accommodate learner characteristics.

Questioning. Questioning has also been found to be positively related to learning success and involvement (Rosenshine & Stevens, 1986). Therefore, in considering courseware, practitioners should evaluate whether or not a given material contains ample opportunities for the student to respond. For example, a recent comparison of CAI and teacher-directed instruction (TDI) showed increased benefits as a result of TDI (Wilson, Majsterek, & Simmons, 1989). Although the presentation sequences were carefully matched, the TDI procedure provided nearly three times the number of opportunities for students to respond. The researchers concluded that the advantage of TDI in acquisition of multiplication facts was more a function of opportunities to respond than delivery format.

Chunking. The size of the teaching set is another important variable associated with academic performance. Hasselbring, Goin, and Bransford (1988) advocated using small sets of target facts to facilitate automatic responding. Similarly, comparing two computer programs designed to teach word meanings, Woodward et al. (1986) reported better results for the group that used smaller teaching sets. A further benefit of smaller sets is that the teacher can more easily monitor student mastery level and add new information, as needed.

The advantage of smaller chunks of basic-skill instruction is also supported by research examining the effects of distributed and massed practice. Consequently, effective courseware permits small skill increments to be added to a program that, itself, can be limited in size. In addition, better gains can be expected by using the CAI skill-building software in smaller segments during the school day.

Contingent feedback. The positive effect of contingent, specific, and sincere instructional feedback is well documented (O'Leary & O'Leary, 1977). In addition, research has supported the use of feedback in CAI courseware for students with LD (Reith, Polsgrove, & Eckert, 1984). For example, in one study, students' incorrect spelling attempts were first imitated and then followed by a monitor-presented correct response. Based on the results, Hasselbring (1984) concluded that the "imitation-plus-modeling" procedure resulted in better performance than a comparable treatment without the imitation. Sincerity cannot be programmed; however, feedback contingency and specificity are courseware qualities that deserve the practitioner's attention.

Practitioners should also consider feedback variety and delivery mode. Chiang (1986), for example, noted that early student enthusiasm for voice-synthesized feedback in a computer program diminished when students realized the limitations of the computer's verbal repertoire.

Challenge. Successful student involvement also depends on the delivery format. Therefore, practitioners should always consider how the student views the courseware. In particular, is the courseware stimulating without being distracting? Is it motivating and challenging? Some writers have proposed that the strength of CAI is its ability to sustain attention (Gagne, Wagner, & Rojas, 1981). Consequently, software frequently uses a video arcade format. However, although competitive software may motivate and hold the attention of some students with LD, others may find the graphics distracting. For example, Christenson and Gerber (1986) noted that students with LD did better using a nongame format. For best results, practitioners need to weigh the merits of software by periodically observing student interactions with it.

In summary, to sustain active and successful student involvement (two characteristics of ALT), basic-skills courseware must be quickly paced, allow multiple opportunities to respond, present materials in manageable chunks, provide contingent and varied feedback, and challenge users without being distracting. Unless courseware is previewed in real time, it is difficult to determine if it offers sufficient opportunities to respond, and if it is presented in appropriately graduated steps. The ability to modify a program's pace, feedback, and the amount of information presented greatly enhances its effectiveness and utility. Finally, being aware of each student's interests and learning characteristics assists practitioners in judging how potentially effective a particular program will be.

2. Will the CAI augment teacher-directed instruction?

Based on reported research, academic remediation of students with LD is best achieved using skill-building CAI applications, in particular, if used to augment TDI. But what does *augmentation* imply? Put simply, the computer cannot stand alone. Thus, augmentation implies that practitioners do not relinquish their instructional role when they send a student to work at the computer. To be augmentative, CAI must be built on effective techniques implemented in the teacher-directed portion of a lesson. Therefore, several effective teacher variables deserve attention as practitioners consider their role in the use of CAI.

Anticipatory set. Advanced organization implies that students know what to expect during instruction. Students benefit most when provided with an overview of what will be accomplished and what they should expect in a given lesson. Such advanced organization serves as a guiding template for a lesson. For example, an overview by the practitioner, indicating the role of the computer courseware in the overall lesson, will tell the student what is expected. Recommendations from The Center for Technology in Human Abilities (Johns Hopkins, 1988) support continual teacher involvement in integrating "online and off-line activities." Suggestions include (a) previewing the CAI programs with the student, (b) introducing the courseware like any other new instructional material, and (c) reviewing the CAI instructional material before the student goes to the computer.

Guided practice. During the initial skill-development phase of learning, questioning techniques and feedback practices (described as *guided practice)* are critical. Research indicates that higher levels of questioning during instruction are positively related to teaching effectiveness. Since existing CAI is not auto-instructional, active teacher supervision is essential, especially for lower ability students. Therefore, effective CAI applications will depend on the practitioner's guidance *at* the computer terminal (guided practice) until the student demonstrates competency in working in

dependently with the courseware (independent practice).

Review. Reviewing (and reteaching when necessary) — another principle of effective instruction (Rosenshine & Stevens, 1986) — also implies active teacher involvement during CAI. Evaluative questioning during instruction affords the practitioner the opportunity to monitor student learning and, when necessary, adapt the CAI application to meet student needs. Most skill-building programs are technically unable to review a student's knowledge and misconceptions (Woodward & Carnine, 1988). Therefore, to be effective, CAI must rely on a practitioner's judgment, and adaptations must be made to address individual instructional needs as these arise during the teacher portion of CAI. Courseware can facilitate this process by recording errors and/or discontinuing presentations when students encounter difficulties so that the practitioner can intervene.

Fluency. The importance of fluency of basic skills in the achievement of higher level applications has been documented for reading and math. Because much courseware does not build on existing fact knowledge, many programs train an alternate "crutch" strategy instead of fluent recall. For example, students tend to learn more rapid finger counting rather than math facts.

Practitioners should select D & P software that promotes automaticity. To be considered automatic, students should respond *from recall* in a 3- to 4-second range. To control this aspect of CAI, practitioners must not release their students to work at the computer without first evaluating their response time. Therefore, software should permit easy entry and removal of target facts or sight words on students' data disks. This feature not only allows the courseware to be used more effectively, it also enables the practitioner to continually monitor the degree to which mastery is taking place.

Grouping. In discussing the supplemental role of computers, it has been noted that courseware is only half of the equation. One way to extend a teacher's instructional monitoring is to group students. Research has documented that working alone or in dyads produces equal learning on a CAI math problem-solving task for students with learning handicaps. Students in this study also expressed a preference for working in small groups (Lieber & Semmel, 1987). The reported results stem from research on problem-solving CAI; yet, practitioners should consider matching handicapped and nonhandicapped learners for skillbuilding applications. Benefits can be expected when rewards for achievement are contingent on cooperation between members of the dyad (Lieber & Semmel, 1988).

CONCLUSION

The availability of computers to students with LD is increasing and, particularly at the elementary school level, the use of D & P courseware seems appropriate. The research base for the D & P applications is generally supported in the CAI literature. However, to date, this type of courseware has been most effectively used in a supplementary role, as opposed to supplanting teacher-led instruction. The instructional benefits of CAI are contingent on the use of sound instructional techniques. Based on several empirically validated teaching principles, specific recommendations were made in this discussion for how to select and use courseware with elementary students with LD. It was also argued that courseware is only *half* of effective CAI. The other half of the partnership requires active teacher involvement to ensure that computer use meets the unique learning needs of each student with LD.

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Direct Instruction of Decoding Skills and Strategies

Deborah C. Simmons and Edward J. Kameenui

Educators are confronted daily with students who are unable to read age- or grade-appropriate material. Unfortunately, many students' reading deficiencies are neither temporary nor easily remediated, but persist to affect a range of academic domains (Juel, 1988). Considerable research has investigated the source of students' reading deficits as well as methods to remediate such difficulties. From this research, two findings have garnered considerable and consistent empirical support. First, many students' reading deficits are related to, if not caused by, their extreme difficulty with phonemic awareness and decoding (e.g., Juel, 1988; Perfetti, 1985; Stanovich, 1986). Second, when beginning reading instruction emphasizes a systematic code-based approach, students evidence significant gains in both word recognition and reading comprehension (see Chall, 1989, for a review). In this monograph, we (a) provide a rationale for addressing the deficits of students with learning disabilities and low reading achievement using systematic decoding instruction; (b) summarize intervention research findings in the area of phonemic awareness and decoding instruction; and (c) present an instructional model for translating these findings into instruction.

BEGINNING READING INSTRUCTION FOR LOW-ACHIEVING READERS

To address the deficiencies of students with learning disabilities and low reading achievement, we recommend explicit and systematic teaching of basic phonics skills as a first step in beginning reading instruction. Although there has been considerable opposition to the code-emphasis approach (e.g., Carbo, 1989), converging findings from educational research and cognitive psychology support Stanovich's (1986) recent position that, for low-achieving readers, "comprehension fails not because of over-reliance on decoding, but because decoding is not developed enough" (p. 73).

Although research findings support phonics-based programs, results do not endorse all phonics programs unequivocally. Code-emphasis approaches that employ systematic, well-designed instructional procedures effect more positive trends in students' reading achievement than less intensive phonics programs (Chall, 1967, 1989; Williams, 1985). In this monograph, we emphasize that students with reading deficits require expertly designed and systematically delivered direct decoding instruction to acquire sufficient beginning reading skills. Unlike average-achieving students who seem to learn with moderate effort and instruction, students with learning disabilities or reading deficits require intensive doses of quality instruction to acquire fundamental decoding skills. In the following section, we identify those fundamental skills and review relevant research findings.

COMPONENTS OF DECODING INSTRUCTION AND RELATED RESEARCH FINDINGS

Decoding is the ability to translate printed symbols into words. It is the process of analyzing and synthesizing a code of symbols and sounds. Fluent decoding requires the acquisition of increasingly complex skills, beginning with phonemic awareness and culminating in accurate and automatic word recognition in passage reading. Multiple interdependent skills comprise this process of decoding. We restrict our review to the following five areas of decoding instruction: (a) phonemic awareness, (b) letter-sound correspondences, (c) regular word reading, (d) irregular word reading, and (e) passage reading.

Students will require additional instruction in learning and applying supplementary word-recognition strategies such as structural and contextual analysis. However, we recommend reserving the introduction of these skills until students have developed proficiency in basic applications of the phonics code. As Carnine and Silbert (1979) noted, the question is not *whether* meaning-based word identification skills need to be taught but, rather, *when*. The following recommended practices are gleaned from decoding research that documented significant improvements in the word identification achievement of students with reading deficits.

Phonemic Awareness

Research findings consistently document the positive relationship between phonemic-awareness skills and reading achievement in the early grades (e.g., Bradley & Bryant, 1983; Juel, 1988). *Phonemic awareness* is the ability to recognize auditory features of words and to perform tasks using these auditory stimuli. These tasks involve a host of skills, including recognizing rhymes, deleting and substituting phonemes from various parts of words, isolating beginning, medial, and final sounds, and dividing words into parts (Lewkowicz, 1980). Of the phonemic awareness tasks, Lewkowicz identified two that are directly related to reading achievement: (a) *segmenting*, and (b) *soundblending* words.

Auditory segmenting involves orally identifying and separating the individual phonemes within a word in the correct order. It is the slowed pronunciation of the word so the student can hear the individual sounds. In segmenting tasks, students slowly say or stretch out the sounds in a word, such as *man*, "mmmaaannn."

Auditory soundblending entails recognizing, pronouncing, and combining isolated sounds into a whole word. In essence, this task teaches students how to put sounds together to form words.

Findings from Phonemic-Awareness Research

- Teach segmenting and soundblending explicitly. Williams (1980) found that students with reading disabilities made significant improvements on both decoding acquisition and transfer word identification tasks when taught both phonemic awareness skills.
- Introduce phoneme blending and phoneme analysis (segmenting) as prerequisites to formal decoding instruction (Juel, 1988).
- Introduce vowel-consonant (e.g., *am*) or consonant-vowel (e.g., *me*) words in segmenting activities before scheduling consonant-vowel-consonant (e.g., *red*) and more complex word types (Helfgott, 1976; Lewkowicz & Low, 1979).

- Train auditory skills using visual markers (letters, tokens) along with auditory stimuli (Haddock, 1976; Hohn & Ehri, 1983). If presentation of visual stimuli overloads students, use an auditory approach only in the beginning stages of word analysis.
- Stagger the sequence of auditory skills and decoding training. Alternate segmentation and blending training on a few word types and then introduce decoding training on the words just segmented and blended (Lewkowicz, 1980).

Sound-Symbol Associations

In sound-symbol associations, sometimes referred to as *letter-sound correspondences*, the task objective is to say a sound that is keyed to a particular letter or graphic symbol. The teacher presents a symbol, models the associated sound ("This says *mmm*"), and then asks the student to supply the corresponding sound. This phase of phonic instruction is the foundation of subsequent decoding skills and is critically important.

Findings from Sound-Symbol Association Research

- Separate visually and auditorily similar sound-symbol associations (e.g., *b,d,p,d*). Carnine (1981) found that training conditions that provided for the initial separation of similar elements (either in shape or name) required fewer training trials than conditions that did not provide such separation.
- Introduce new symbols only after students reach criterion on previously presented symbols. Training students to criterion on a small group of symbols resulted in significantly fewer trials to reach criterion as well as a greater number of correctly identified letter-sound correspondences on a posttest measure, compared to a simultaneous schedule where six new letters were introduced consecutively on a daily basis (Carnine, 1978).

Regular Word Reading

Regular words are those in which letters represent their most common sounds (Carnine & Silbert, 1979). Words such as *red, blast,* and *stop* are examples of regular words that can be accurately decoded by translating symbols into sounds. When teaching regular words to students with reading difficulties, consider the following recommendations.

Findings from Regular Word Reading Research

- Teach students to process all the sound-symbol associations in the word rather than cueing on the first letter or salient feature (Ehri & Wilce, 1987).
- Teach students soundblending skills so they may smoothly connect sounds for symbols into words (Carnine & Silbert, 1979; Williams, 1980).
- Schedule less complex (e.g., CVC, CVCC) words prior to introducing more difficult and lengthy word forms (e.g., CCVCC, CCCVCC) (Golinkoff, 1978).
- Use a word-attack, skill-oriented program as opposed to a linguistic-based approach to teach beginning word identification skills (Stein & Goldman, 1980).
- Schedule word-level practice to develop word-recognition automaticity (Jenkins & Pany, 1981). Although significant gains in word recognition result from word-level practice, this practice has been found to only minimally benefit reading comprehension.
- Provide additional word-identification practice by supplementing teacher-directed with computer-aided instruction (Jones, Torgesen, & Sexton, 1987).

Irregular Word Reading

Irregular words contain sound-symbol associations that do not represent their common sounds or sound-symbol associations that have not yet been taught. For example, the words *the* and *was* cannot be accurately decoded by application of sound-symbol associations and soundblending. Therefore, the most efficient means of teaching irregular words or sight words is a model-lead-test paradigm. A limited amount of research has been conducted on teaching irregular words. A summary of these findings follows.

Findings from Irregular Word Reading Research

- Teach sight words in small units (five words per unit) and until students reach mastery on words (80% accuracy). Drop words temporarily as they are learned and provide distributed practice on all words introduced (Bryant, Fayne, & Gettinger, 1982).
- Introduce sight words through an antecedent modeling procedure (Hendrickson, Roberts, & Shores, 1978). In *antecedent modeling*, the trainer presents the word card and says, "This word is . . .," and then asks the student to identify the word. If the word is misread, repeat the modeling sequence.
- Teach sight words using printed words only. Picture cues appear to interfere with the acquisition of new words in isolation (Rose & Furr, 1984).

Passage Reading

Decoding words at the passage level is the most complex of beginning reading skills because it requires the reader to orchestrate all the previously reviewed component skills. To increase students' success on passage reading tasks, initial passages should be highly controlled, containing few, if any, words that cannot be decoded through soundblending sound-symbol associations. When passages contain words with unfamiliar symbol associations or unknown sight words, teach these words prior to requiring the learner to read them in context. Additional recommendations for teaching passage reading follow.

Findings from Passage Reading Research

- Use repeated readings to develop word-recognition fluency. In repeated readings, students read the same passage multiple times until an established level of mastery is reached. Begin with short, simple passages containing decodable and familiar sight words. Increase passage length and difficulty gradually as the student reaches specified rate and accuracy criterion (Henk, Helfeldt, & Platt, 1986; O'Shea, Sindelar, & O'Shea, 1987).
- Correct word-identification errors consistently. For students with low reading performance, all word-correction procedures were superior to no corrections (McCoy & Pany, 1986).
- Correct errors through word drill. Put error words on flashcards. Review and drill until student can read deck of error words from a passage without error twice in succession (McCoy & Pany, 1986).

Applying Findings from Decoding Instruction Research

The following instructional sequence incorporates many of the recommended procedures previously reviewed. An abbreviated skills lesson follows, demonstrating the preliminary steps in designing and delivering effective decoding instruction. This teaching sequence is not exhaustive, but rather illustrates the range of skills and factors to consider when teaching students who evidence reading difficulties. For classroom instruction, it will be necessary for you to generate additional examples and practice exercises. The example lesson employs a Before, During, and After Instruction framework (see Kameenui & Simmons, in press) to illustrate critical instructional stages.

Summary of Decoding Instruction

Decoding is a complex skill that many students with learning disabilities never develop to automaticity. Research emphasizes the central role that phonemic awareness and decoding play in reading achievement and documents the enduring deficits experienced by students with learning disabilities in these critical skill areas. These findings serve as strong encouragement for teachers to use methods of demonstrated efficacy when teaching beginning reading skills. This monograph summarized recent research findings relevant to instructional factors that enhance students' acquisition and retention of decoding skills. We conclude by emphasizing that a student's ability to develop accurate and automatic decoding skills is directly linked to how these are taught.

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Decoding Skill: Phonemic Segmenting

Before Instruction

Preskills:

1. Ability to follow oral directions
2. Ability to follow visual cues

Instructional Design Guidelines:

1. Use words beginning with continuous sounds
2. Begin with VC and CV words
3. Include words to be introduced in upcoming sound-symbol association and regular word reading tasks

Introductory Set of Words: **am at it me on**

Generalization Set of Words: Any VC or CV words beginning with continuous sounds

During Instruction

Teacher: "I'm going to say a word then I'll stretch out the sounds in the word. Stretching out sounds helps you hear all the sounds in the word."
"As I say a sound, I'll point to the marker on the board."
"I need your eyes on the board."
"Where do I need your eyes, Rich?"

Student: "On the board."

Teacher: "Very good. Listen and watch as I stretch out the sounds in the word *am*." (Teacher points to the first marker on the board) "aaa" (teacher moves finger to the next marker) "mmm."
"Your turn to stretch out the sounds with me. The word is *am*. Get ready." (Teacher positions finger in front of first letter, waits 1 to 2 seconds, then proceeds through task)

Everyone: "aaammm."

Teacher: "Great stretching out those sounds. Your turn to stretch out the sounds in the word by yourself. Get ready. . . ."

After Instruction

Analyze Errors and Make Instructional Decisions:

1. If the student was unable to answer at the same pace of peers, provide more *think time* before requesting response.
2. If the student demonstrates a general inability to stretch out the sounds, model more examples and provide more practice.
3. If the student responds inconsistently, examine examples to determine whether particular sounds are more problematic than others.

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Self-Monitoring of Performance

Robert Reid and Karen R. Harris

Self-monitoring interventions are a part of a family of interventions based on cognitive-behavior modification (CBM) principles. Unlike behavior modification techniques in which behavior is controlled by teachers or others, CBM techniques work from the "inside out." That is, children learn to be active agents, and run the intervention themselves. The goal of CBM interventions is to develop self-regulated learning and behavior.

Self-regulation is especially appropriate for students with learning disabilities (LD), who are often described as deficient in task strategies and unable or unwilling to make active academic responses. One explanation for such behavior is deficits in the ability to apply appropriate task-relevant and self-regulation strategies (Harris, 1986a; Meichenbaum, 1983). Researchers have demonstrated that when many students with LD are taught appropriate task and self-regulation strategies, their performance improves meaningfully, in some cases equaling or surpassing the performance of normally achieving peers (Graham & Harris, in press; Pressley & Levin, 1986). Thus, although not a panacea, self-regulation training can be a useful addition to the classroom teacher's repertoire of interventions.

In this chapter we will outline the basic knowledge necessary to implement self-monitoring of performance (SMP). After a presentation of the three components of SMP, we will describe the steps necessary to implement SMP in the classroom, followed by a discussion of problems and concerns that may occur in practice.

Self-Monitoring Components

Self-monitoring occurs when an individual determines whether or not a specific behavior has occurred, and then self-records the event in some way (Nelson, 1977). Thus, SMP interventions contain two elements: self-assessment and self-recording. The effectiveness of SMP interventions depends upon engendering in students an awareness of their academic performance. In order for SMP to be effective, self-assessment and self-recording procedures must be: (a) parsimonious, (b) minimally obtrusive or laborious, (c) appropriate to the target behavior, (d) enjoyable for the student, and (e) relevant to the student's needs (cf. Barlow, Hayes, & Nelson, 1984; Harris & Reid, 1989).

Self-assessment. The self-assessment stage involves establishing what the student is to self-monitor and what criteria will constitute an acceptable response. In the classroom, this may be an academic response, such as the number of arithmetic problems completed correctly or the number of spelling words practiced correctly. This stage prompts students to compare their own performance to the standards of acceptable performance. Self-assessment occurs when the student determines whether or not the selected behavior has occurred. The response or task established for self-monitoring should be meaningful to the student and fall within the student's functional ability.

Self-recording. The self-recording component involves having students count and chart the frequency (or duration) of their acceptable responses, thereby providing them with a graphic depiction of their performance over time. Self-recording allows the student to *see* improvement. The self-recording component is essential to the success of the intervention. Figures 1 and 2 provide illustrative graphs.

Implementing SMP

Researchers have established specific steps and guidelines for effectively implementing self-monitoring (cf. Barlow et al., 1984; Harris, 1986b; Mahoney, 1977).

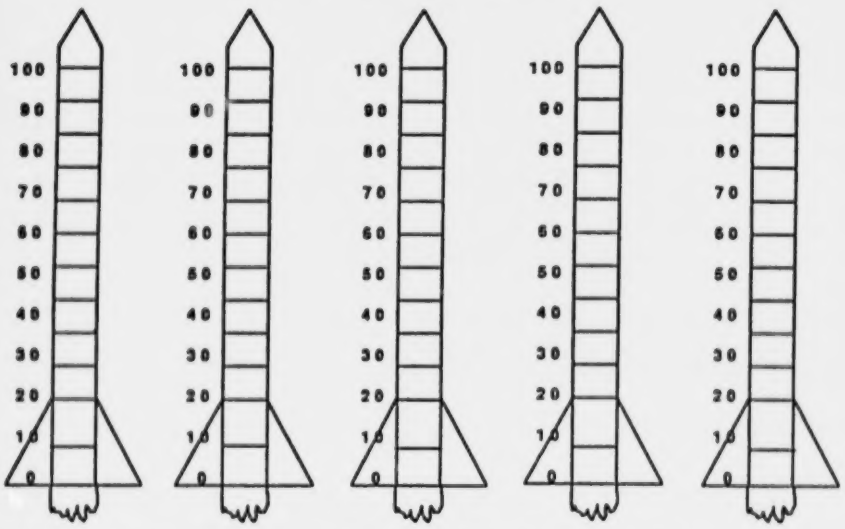
Step 1. The first step in implementing SMP consists of defining explicitly what the student is to self-monitor. This should be a response or behavior that can be simply defined and easily understood by the student. For example, "improved reading ability" might be a desirable goal, but would be difficult to define in a manner that a student could understand and recognize. More realistic tasks might include correctly answering reading-comprehension questions, increasing sight-word vocabulary, or increasing spelling practices; such behaviors are more explicit and, therefore, more easily understood by the student. When selecting a target behavior, remember that the student must be able to evaluate and record her or his performance on the task that is selected.

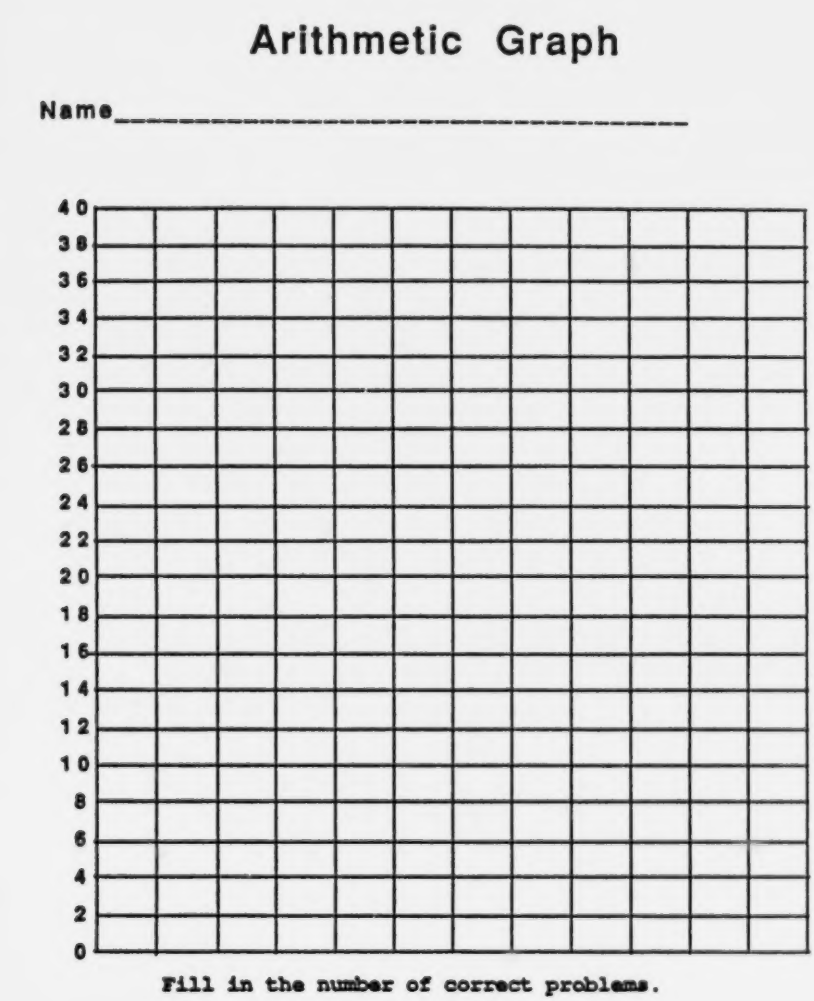
Step 2. During the next step, baseline information is gathered on the student's current performance level. Without such information, the teacher cannot accurately assess the success of SMP. This need not be a tedious, time-consuming procedure. In most cases, it is sufficient to gather enough work samples to obtain an accurate picture of current performance. This information may be graphed and shared with the student when discussing current performance level and the benefits of self-monitoring. Later, these baseline data can help demonstrate progress.

Step 3. After the initial steps, the teacher is ready to meet with the student. It is important to explain the rationale for self-monitoring and to enlist the student's willing cooperation and commitment to self-monitoring. Explain the purpose of the treatment and the benefits the student will derive (e.g., "I'd like to teach you something that I think will help you learn to spell more words correctly and to get higher scores on your weekly spelling tests"). Make sure the student understands what is being proposed. Keep the student's developmental level in mind. With younger or less mature students, it is helpful to use simple and concrete explanations. With older students you may want to provide further explanation and may need to respond to questions. Do not make sweeping promises about the benefits the student will derive! Be optimistic, but be honest.

Step 4. After the purpose of the treatment is understood and the student has "bought in," instruct the student in the procedures involved. This takes approximately 15 to 30 minutes. Make sure the student gains a clear understanding of what is expected, as the student will be required to self-monitor independently and will, in essence, be running the intervention.

First, outline the steps and explain what is expected of the student at each step. Point out: (a) what will be self-evaluated (e.g., the number of arithmetic problems done *correctly*); (b) what criteria are necessary for success (e.g., must show all the steps in the long division problem and arrive at the correct answer); (c) how to count results (some students may need to make a written tally;





Figures 1 and 2. Illustrative self-recording graphs.

others simply may count); (d) how to graph the results (the number of successes must be recorded accurately); and (e) when the SMP procedure is to be performed (e.g., after math practice on Tuesday and Wednesday). After outlining the steps, model them for the student, verbalizing what you are doing at each step. Then model the process again, and ask the student to verbalize what you are doing at each step. Finally, ask the student to model the procedure and verbalize the steps. Ask the student to self-monitor several occurrences of the target behavior while you observe. At the end of this stage, the student should know how to carry out the SMP procedures independently.

When you are ready to start SMP in the classroom, check to see if the student is able to carry out the steps properly. If you detect any confusion or any problems, you may want to schedule a short booster session to review or reteach parts of the process. For some students it may be appropriate initially to provide a list of steps as a reminder. It is important that the student carry out the SMP procedures *correctly* and on a *regular basis*. Surprisingly, however, for must students the self-recorded data need not be highly accurate in order for positive effects to occur! If self-monitoring does not yield the desired effect, it may be necessary to train the student to self-record more accurately, or to reinforce accurate self-recording.

Practical Dos and Don'ts

The ultimate goal of SMP is to improve certain aspects of performance such as quality and/or rate of work, thereby improving achievement. Successful SMP requires that the student be able to perform the task that is targeted for improvement. *SMP does not instill academic skills; it is not a learning strategy.* Thus, in order for self-monitoring to have meaningful effects, students must first be capable of performing the task or behavior they are monitoring. For example, teaching students to self-monitor the number of division problems completed correctly during a seatwork period will have little effect if they do not know the division algorithm. However, SMP can be combined effectively with strategy instruction. Teach students a task strategy and then to self-monitor appropriate strategy use. For example, if a spelling study strategy involves repeatedly writing down spelling words, students can monitor the number of correct practices.

When designing self-assessment and self-recording procedures, make sure that (a) they do not interfere with the actual performance of the desired task, and (b) the student can realistically carry them out. For example, requiring the student to stop frequently and self-assess and self-record while performing a task may be distracting and self-defeating. Frequent counting and graphing could be distracting and, therefore, decrease the rate of performance. Instead, counting and graphing the number of spelling practices completed during a daily study period should occur at the end of the period, as opposed to having the student stop, count, and record every few minutes during the study period. SMP should not be a burden to the student.

For some students, it may be effective to combine goal setting with self-monitoring. In such cases, help the student develop realistic, obtainable goals after discussing current performance level with the student. Goals can be set in gradually increasing steps. If students spontaneously begin setting goals, this should be encouraged (provided, of course, that the goals are realistic). You also might prompt students indirectly to set goals (e.g., ask them where they think they will be able to mark the graph the next day or week).

Self-monitoring can also be combined with other procedures. In some cases, students have signed written agreements to self-monitor, or a contract has been developed that specifies the nature of the task, the self-monitoring procedures to be used, and the performance criterion (cf. Barlow et al., 1984). However, such procedures have rarely been necessary in our work with students with LD. For most students, self-monitoring is effective alone. Avoid combining self-monitoring with rewards (such as tokens, stickers, recess time) that are contingent upon performance and based on students' self-records. This practice provides students with an incentive to "cheat," or inflate their scores, and can lead to inaccurate self-recording. Further, in using such an approach the emphasis is on obtaining the reward, rather than self-regulation. When reinforcers are not involved, researchers have typically found that students' self-records are highly accurate (Harris, 1986b; Harris & Graham, 1985).

Although the student is running the intervention, it is important that you show interest in the student's self-recorded data and provide plenty of positive social reinforcement for the student's effort and achievements. When the teacher is appreciative and self-monitoring is enjoyable, students are willing to self-record over long periods of time (cf. Barlow et al., 1984). We have worked with students who have continued self-monitoring for 2 or 3 months without complaint, and have chosen to continue SMP even when told they could stop. Thus, determining when to terminate SMP, or when to switch to self-monitoring of a new task or behavior, should take place through discussion with the student. If performance levels are not maintained when SMP is terminated, then the self-monitoring procedures should be reinstated.

Examples of Effective Practices

We have taught teachers and students how to implement self-monitoring for many different tasks or behaviors, including how to improve spelling performance (Harris, 1986b; Harris & McElroy, 1988). Prior to learning the self-monitoring procedures, the students learned a spelling study technique consisting of several steps—covering the word, writing it three times, and checking the spelling. After students were proficient with this study strategy, baseline data were collected. Students were then taught to count and graph the number of correct practices completed during daily 15-minute study periods. We worked with four 9- and 10-year-old students with LD whose average number of correct practices during baseline were 22, 20, 14, and 32. After SMP training, their mean practice scores were 47, 78, 77, and 75; quite respectable results for a 15-minute study period! On several days, students' practice counts exceeded 120! Similar improvements in on-task behavior were also found. The average percentage of time on-task during baseline for the four students was 57%, 32%, 44%, and 52%; after SMP training the corresponding average were 87%, 75%, 89%, and 98%.

These students were very positive about SMP. As one young man put it, "The graph helps you learn best because you have to write a certain amount of words. . .you get your words packed down in your mind." Another student noted that, "When I write my words over and over again it helps me memorize them so when the test comes I can just write them down." In addition, their teacher reported that due to SMP, she was able to increase the difficulty level of their spelling words and she spent far less time monitoring their behavior during the spelling study period.

We have also used SMP to improve LD students' composition performance (Harris & Hamby, 1988). These students were first taught a story-writing strategy (cf. Graham, Harris, & Sawyer, 1987) and then how to count and graph the number of words in their stories. The results were positive; number of words written, percentage of time on-task, and story quality all improved.

The illustrations we have provided have been academic in nature; however, SMP can be used for a wide variety of tasks or behaviors, such as motor skills, social skills, or sports. One teacher we worked with used SMP to help an adolescent student with LD first decrease and then eliminate nervous thumb-sucking during class. Previous procedures used to help her stop this behavior had failed. The teacher collected baseline information by videotaping a class session, and then privately (and in a positive, supportive manner) shared the video with the student. The student subsequently learned to count (by simply making a slash mark on a small card on her desk) and record the number of times she engaged in thumb-sucking. Thumb-sucking did not return when SMP was discontinued.

Finally, SMP can be used for behaviors that are timed rather than counted. For example, students have been taught to self-monitor the amount of time spent studying at home (Barlow et al., 1984). Used appropriately, SMP can be beneficial to many students and their teachers.

NOTE

We would like to hear from you regarding your experiences with SMP. Please address correspondence to Dr. Karen R. Harris, Department of Special Education, University of Maryland, College Park, MD 20740.

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Teaching Writing Skills Through Word-Processing Programs

Marion V. Panyan and Evelyn M. Dailey

A new tool appeared on the educational scene in the 1970s; increasing applications of that tool, the microcomputer, have accounted for improvements in math, language arts, social studies, and vocational skills (Roblyer, 1985; U.S. Congress, 1988). Nowhere are the benefits of computers more pronounced, nor more needed, than in the instruction of students with learning difficulties. Thus, with the appropriate software, microcomputers are ideal for the learning needs of students with disabilities because of their motivational and instructional properties (Budoff, Thormann & Gras, 1984).

This article will focus on the effects of word-processing programs on the writing skills of students with mild handicaps. This topic was chosen because it represents one of the most appropriate and pervasive uses of technology. Not only is writing a lifelong skill for personal productivity, it can also translate into a marketable job skill. Finally, writing competencies can account for improved performance in many content areas.

Used with the elements of good writing instruction, a word processor can significantly enhance students' written work (Ellis, 1986; Morocco & Neuman, 1987). The writer's ability to easily produce readable text and the resultant sense of authorship are two clear advantages of word processors (Goldenberg, Russell, & Carter, 1984; Hagen, 1984).

The impact of the computer as an instructional tool depends on how well teachers use it. The purpose of this discussion is to provide guidelines, based on theory, research, and practice, on how teachers can best integrate computers into their writing instruction.

Before the advent of computers, teachers faced only the typical instructional decisions and strategies associated with teaching writing. With the advent of word processing, teachers are faced with new challenges—students must learn all the capabilities of the computer and functions of the word processor as well as how these can help them write effectively (Reeves, 1988). However, once students learn the foundation skills, the word processor offers powerful supports for the writing process.

Foundation Skills

Several guides are available for how to teach the basics of word processing (McWilliams, 1983; Milone, 1985; Wresch, 1987). Craighead (1984) offered the following suggestions for initial instruction in the use of word processors.

- Discuss the term *word processing*: what it is; how it works; and why it is used.
- Discuss the following vocabulary words: *cursor, text,* and *utilities.*
- Review the use of the computer and the care of the disks.
- Teach students how to initialize a disk for their particular machine.
- Invite students to type anything they want and allow them a few minutes of exploratory time.
- Discuss the following vocabulary words: *delete, margin, insert, edit, modify, save, recall, space bar, word wrap,* and *center.*
- Give students exercises that exemplify these concepts by making lists, writing short poems, or other writing assignments.

Other researchers have provided valuable recommendations for classroom instruction. For example, Neuman and Morocco (1986) suggested that students receive daily keyboarding instruction prior to the introduction of word processing if a word processor is to be used effectively as a medium for teaching writing. These authors also found that students produced effective writing only when they were familiar with the keyboard and could write at a rate commensurate with their thoughts (1987). Further, Keith Wetzel, workshop coordinator at the Center for Advanced Technology in Education at the University of Oregon, identified the following components as being critical for a sound instructional program for developing keyboarding skills:

- Collaboration between business education and elementary teachers in planning and implementing the program.
- Elementary teachers who have sufficient training in the teaching of keyboarding to feel comfortable with the delivery of a new skill.
- A scripted teacher's guide that makes direct instruction efficient.
- A good keyboarding software program.

Reeves (1988) outlined sample lessons for teaching word-processing skills in her manual, *Computers in the Writing Program: A Maryland Guide.* For example, Lesson 1 might include:

EXPLAIN	how to open, save, and quit a file. Provide quick reference sheets for students to follow.
MODEL	the process of using a computer. Talk through each step as you perform it.
GUIDED PRACTICE	with preinitialized disks, give students a brief paragraph to type in.
MONITOR	steps as students perform them. Remind students what they should see on the screen at each successive step.
ALLOW	new material by having students perform a simple writing assignment.
APPLICATION	opening, creating, saving, and quitting their own files.

Writing Process Instruction

Students learn best when presented with (a) a rationale for the skill to be learned, (b) modeling of the skill, (c) opportunities for practice, and (d) feedback regarding use of the skill (Joyce & Showers, 1980). The process approach to teaching writing can follow this model.

Since the writing process approach has distinct advantages over other instructional approaches for students with learning disabilities, the process framework will be used here to discuss word processing capabilities. The writing process includes three phases: planning, drafting, and revising (Graves, 1983).

Planning. This phase emphasizes the need to gather ideas, explore possibilities,

and focus attention. Morocco and Neuman (1987) concluded that procedural writing instruction in word processing, that is, writing instruction that provides students with strategies for generating ideas, was most successful for teaching writing to learners with mild handicaps.

A variety of available software programs, particularly *outlining programs*, assist the writer in the planning phase. For example, with the assistance of MECC Outliner, the teacher can help students plan an outline or the teacher may develop a sample skeletal outline and place it on each student's data disk. The instructor can then teach the students to enter, delete, move, and search and replace text consistent with headings, subheadings, and details. Students can also experiment with formatting techniques such as centering, setting margins, boldfacing, and underlining.

Another technique, known as *invisible writing* (Marcus, 1984), allows the writer to dim the light on the computer monitor and begin typing in ideas, words, or phrases. This process is similar to the stream-of-consciousness technique of writing. Because the students do not see the words on the monitor, they are not distracted by mechanical flaws. This instructional technique is particularly helpful for students who may be overly concerned with the accuracy of their text. Later students can insert, delete, and move ideas around in a more organized fashion, as well as attend to mechanical errors.

A third method of assisting students in the planning stage is the use of *prompting programs*. For instance, MECC offers several programs that "walk the student through" exercises that, in turn, prompt students to generate ideas for their writing. Three such programs are *Writing an Opinion Paper, Writing a Character Sketch,* and *Writing a Narrative*. These programs permit students to enter and delete information and print their work. Other commercially available programs which accomplish the same objective but in a broader sense include *Writer's Helper* and *Prewrite*. These programs pose questions to the user and help him/her develop a topic, central idea, purpose for writing, and intended audience. Like the MECC products, these programs also allow students to enter, delete, and print their work. In addition, they possess authoring capabilities thereby allowing teachers to enter their own questions.

A fourth instructional tool is a *template*. Templates can offer specific or general prompts for any writing assignment. Teachers can create templates using the word processor, saving it as a file and loading it to each student's data disk. Teachers should instruct and model the various techniques such as entering, deleting, and moving text within the template, and provide students the opportunity to practice these skills. A sample template for writing a news article might include the following questions: who, what, when, where, why, and how.

Drafting. Once students have completed the planning stage, drafting of text may commence — the stage during which writers expand upon their initial thoughts. Here teachers may assist students in forming topic sentences, developing supporting ideas, using transitional devices, and creating a concluding sentence. As for the planning stage, a variety of word processing functions may assist teachers and students through this step of the writing process.

During the drafting phase, students will experiment with various organizational patterns, moving words, sentences, and paragraphs around. They will also continue to insert text and may even begin to edit. Since the writing process is not static, that is, the various steps are not mutually exclusive of one another, it is not unusual for students to perform functions otherwise associated with revision during the drafting stage.

One word-processing function that enables teachers to monitor students' drafts is the use of macros. A macro is a single set of keystrokes or a single command key that executes many keystrokes. Some computers come equipped with function keys; other computers, such as the Apple II, use a combination of Open or Closed Apple plus another key to define a macro. For example, teachers may use macros to focus students' attention on revision.

Paragraph Revision Checklist

1. Did you begin each paragraph with a topic sentence?
2. Did you include three to five supporting ideas for each paragraph?
3. Did you explain each of your supporting ideas with at least one other sentence?
4. Did you begin each sentence with a capital letter and end it with a period, question mark, or exclamation mark?
5. Did you check your spelling and additional punctuation?

Feedback is an important aspect of this stage. Some teachers provide feedback by reading the material on the student's monitor and making comments or suggestions. Other teachers may choose to give students feedback by inserting comments on hard-copy printouts or by inserting comments on the students' screens. These comments might include praise for ideas that are good or areas that need clarification or expansion. FrEdwriter, a public-domain word processor, includes provision for reviewers to easily incorporate personalized feedback. Sometimes other students read the monitor and make comments. Because of the public nature of the monitor, students' work is readily available. Research suggests that students do not seem to mind that others read their writing (Daiute, 1985).

Revising. The final step in the writing process is revising. Students must be allowed to choose the mode of revision that is most comfortable to them and one which most effectively generates their best possible writing.

When students have completed entering text, they are ready to examine that text more carefully and critically. Various *function keys* of the word processor may help them accomplish this. The most obvious function is the DELETE KEY. Another function is MOVE, which enables students to move a word, phrase, paragraph (or multiple paragraphs) to different locations within the text, thus allowing them to experiment with the organization and transition ideas. Another common word-processing function is SEARCH AND REPLACE. This feature allows students to analyze their writing for recurring elements, such as passive voice, and replace them with the active voice. This function is particularly beneficial, as it can be individualized. For example, if the writer is prone to overuse the word *then*, he or she can search to find every occurrence of the word and replace it.

Additional revision tools may be part of the word processor or may constitute separate programs. One such tool is the *spell checker*. Dailey (1989) found that students with mild learning disabilities who had noticeable spelling problems could write compositions without spelling errors after being taught to use a spell checker. O'Donnell (1987) also noted the advantages of spell checkers.

Finally, *text analysis programs* such as *Grammatick, Ghostwriter, Writer's Helper,* and *Writer's Workbench* are available.

These programs focus on the style, syntax, organization, and mechanics of the text, but cannot evaluate whether the writing is interesting or the content sufficient. However, they are useful in that they draw students' attention to errors they might otherwise overlook.

Summary

As noted at the outset of this article, word processors offer a major advantage, as they can be used to prepare assignments in many content areas. Craighead (1984), for example, pointed out how word processing can be used for writing assignments in science, social studies, as well as in language arts. Whatever the purpose, word processing programs must be carefully integrated with both writing and content-area instruction. Ultimately it is the teacher who determines how beneficial word processing is by the manner in which it is introduced. Teachers may wish to consult the list of keyboarding programs, word processors, writing software, and publications included at the end of this chapter for additional resources.

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APPENDIX A: WORD PROCESSORS

Appleworks ($250.00)
(Apple II, 64k required), Claris Corporation, 440 Clyde Avenue, Mountain View, CA 94043
Grades 8-12

Bank Street Writer III ($79.95)
(Apple II, MS DOS), Scholastic Publications, 730 Broadway, New York, NY 10003
Grades 3-8

FrEdwriter (Public Domain, FREE)
(Apple II, 48k required), SoftSwap, P.O. Box 271704, Concord, CA 94527-1704
Grades 1-6

MECCWriter
(Apple II, 64k), MECC, 3490 Lexington Avenue, North St. Paul, MN 55126-8097
Grades 6-12

Microsoft Word ($250.00)
(MacIntosh, MS DOS), Microsoft Corporation, 16011 NE 36th Way, Box 97017, Redmond, WA 98073-9717
Grades 9-12

Talking Text Writer ($149.00)
(Apple II 128k), Scholastic P.O. Box 7502, 2931 East McCarty Street, Jefferson City, MO 65102
Grades k-6, visually impaired

Word Perfect ($450.00)
(Apple II GS, IBM) Satellite Software International, 288 West Center Street, Orem, UT 84057
Grades 9-college

APPENDIX B: WRITING SOFTWARE AND KEYBOARDING

Ghost Writer (MECC)
(Apple II, 64k required), MECC, 3490 Lexington Avenue, North, St. Paul, MN 55126-8097
Grades 6-12

MECC Outliner
(Apple II, 64k), MECC, 3490 Lexington Avenue, North, St. Paul, MN 55126-8097
Grades 6-12

Microtype, The Wonderful World of Paws
(Apple II, IBM), South-Western Publishing, 5101 Madison Road, Cincinnati, OH 45227
Grades 1-3

Prewrite
(Apple II), Learning WEll, 200 South Service Road, Roslyn Height, NY 11577

Typing Tutor IV
(Apple II, IBM), Simon & Schuster, 200 Old Tappan Road, Tappan, NJ 07675

Writer's Workbench
(UNIX), Bell Laboratories, 190 River Road, Summit, NJ 07901
Grades 9-12

Writing an Opinion Paper, Writing a Character Sketch, Writing a Narrative (MECC),
(Apple II 64k), MECC, 3490 Lexington Avenue, North, St. Paul, MN 55126-8097
Grades 6-12

Writing Workshop
(Apple II), Milliken Publishing Co., Kunz, Incorporated (Distributor), 207 E. Patapsco Avenue, Baltimore, MD 21225
Grades 6-12

APPENDIX C: PUBLICATIONS

In addition to software programs that assist the teacher in the instruction of writing using a word processor, various publications offer exciting and innovative ideas. A few of these include:

Classroom Computing

Classroom Computer News

Computing Teacher

Electronic Learning

Milone, M.N. (1985). *Every teacher's guide to word processing: 101 Classroom computer activities for every grade*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Reeves, B. (1988). *Computers in the writing program: A Maryland guide*. Baltimore: Maryland State Department of Education.

Curriculum-Based Measurement

Christine Gliszczinski and Caren L. Wesson

Many techniques, strategies, and programs are initiated to improve the delivery of educational services to exceptional children. Consistently, educators express a need for assessment data that can be meaningfully utilized in formulating and evaluating educational interventions. Standardized testing instruments used to make educational decisions are questioned and challenged. Instead, curriculum-based measurement (CBM), a specific form of curriculum-based assessment, has emerged as a valid and reliable method to measure and monitor student progress and program effectiveness. In CBM the material to be learned is used as the basis for assessing the degree to which it has been learned (Tucker, 1985). It provides a systematic way of monitoring student progress in academic areas. Specifically, CBM allows teachers to efficiently gather information on student achievement, establish baseline, set goals, monitor progress, and determine when a change in instruction is necessary.

In this paper we will present the purpose for CBM, implications, and directions for teacher development of effective instructional practices for exceptional students.

Advantages of CBM

Parents and educators increasingly are demanding convincing evidence of the relationship between successful student learning and daily instructional plans. Traditional assessment data provide little or no information relevant for educational planning (Jenkins & Pany, 1978). Deno (1985b) summarized the research on the limitations of traditional standardized tests into three statements: (a) Standardized tests are biased in regard to curriculum content (Jenkins & Pany, 1978); (b) standardized tests are technically inadequate for making decisions about individual students (Salvia & Ysseldyke, 1985); and (c) standardized test results are not useful for making instructional decisions (Gickling, 1981). In order to bring about and measure student achievement, means other than traditional assessment results are needed.

Valid educational planning must proceed from a determination of students' instructional needs as reflected in continuous performance in the existing curriculum (Gickling, 1985). CBM, an alternative to traditional assessment practices, uses curricular materials as the stimuli for measurement, thereby providing the teacher with a systematic format for monitoring instructional techniques and their impact on student learning.

CBM is different from traditional testing in three ways. First, it involves a direct match between the instructional domain (the curriculum) and a given test. Although schools are curriculum driven (Rosenfield & Rubinson, 1985), few of the current assessment practices relate to classroom performance. Hence the primary goal of curriculum-based measurement is to eliminate the instructional mismatch between students' skills and the demands placed upon them by curricular tasks (Gickling & Thompson, 1985). Second, CBM can be used repeatedly. Many parallel forms can be developed for each level of the curriculum, allowing for frequent testing and thereby facilitating teacher analysis of a student progress. Third, CBM can be used in a time-series design format. Teachers can chart performance data and, as a result, become capable of making more accurate judgments about instructional effectiveness (see Figure 1).

In exceptional education, curriculum and instructional techniques or strategies are specified in the student's Individualized Education Plan (IEP). Assessment of student performance should be directly related to the IEP goal. Indeed, the educational goal defines the material for measurement, as well as the behavior to be observed and the specific criteria for evaluating attainment (Fuchs, Fuchs, & Hamlett, 1989). CBM addresses the demand for teacher accountability and program effectiveness as required in the legislative action of P.L. 94-142 (Deno & Mirkin, 1977) by focusing on successful, meaningful planning and delivery of instructional services rather than on faults or weaknesses within the student.

Deno (1985b) identified five advantages of curriculum-based measurement:

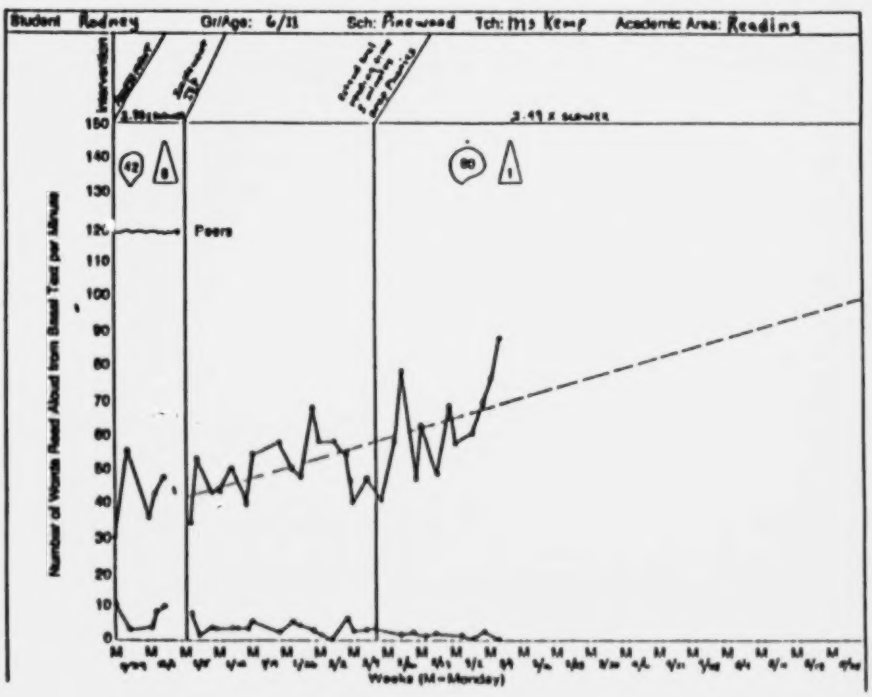

Figure 1. Graph of student performance. From S. Deno, 1985.

1. **Improvement in communication** — data on student performance are clear and simple, and correlate with educational decisions. The student graph is easily understood by parents, students, and other professionals and visually depicts whether or not a student is benefitting from instruction.

2. **Increase in sensitivity** — CBM, as a measurement tool, is not only reliable and valid, it is sensitive to growth in student performance over a short period of time. Consequently, teachers can quickly (within 2 to 3 weeks) evaluate the effectiveness of their efforts rather than having to wait until the end of the report card period, the unit test, or, in some cases, the annual review of a student's educational plan.

3. **Improvement in the data base for making decisions** — CBM requires teachers to regularly sample student performance in the curriculum. The graphically displayed data points accurately identify a student's current level of performance as required in the IEP. Thus, CBM makes it possible to reliably estimate the rate of increase in a student's performance. The teacher computes a slope of progress that statistically describes student growth for a specific period. Such information is unavailable through conventional achievement tests.

4. **Peer referencing can be established** — random sampling of regular classroom peers can be used as a normative perspective. Differences between a student's performance in the curriculum and that of his peers can represent the degree of a discrepancy or deficiency.

5. **Decrease in cost** — additional time or alternative materials are not required when using CBM, as the curricular materials adopted by local school boards are used to obtain the measurement probes. Teachers do need to be specifically trained to use CBM effectively, however. Yet the time spent using CBM is considerably less than the time spent administering end-of-chapter tests or standardized achievement tests.

Additionally, CBM is effective in improving students' rates of progress. In a meta-analysis, Fuchs and Fuchs (1986) reported that when teachers use direct and repeated measurements and graph the data, their students make more progress than the students of teachers who use traditional measurement systems. To sum, a CBM system is reliable and valid, simple and efficient, easily understood, inexpensive, and effective.

Implications of CBM and Directions for Teacher Use

Particularly for individual special education students, effective teaching involves testing various hypotheses about which strategies are the most successful. As a formative evaluation process, CBM can be used to improve program and teacher effectiveness in addition to measuring and evaluating student progress.

Despite research confirming the efficacy of CBM, such as the meta-analysis completed by Fuchs and Fuchs (1986), most teachers do not use this type of system. Wesson, King, and Deno's (1984) survey of learning disabilities teachers confirmed that most special education teachers have heard of formative evaluation systems such as CBM, but tend to shy away from using CBM because they are unfamiliar with the procedures or hold the preconceived notion that CBM is too time-consuming.

Teachers need training in using CBM to increase their proficiency, knowledge, and skills. The general feeling among teachers who use CBM is positive because the information they obtain through direct and repeated measurement of student performance within the curriculum is instructionally relevant as opposed to the information typically derived from standardized testing (Marston & Magnusson, 1985). Teachers enhance the academic progress of their students when they use sensitive, curriculum-based measures to determine the effectiveness of their instructional strategies. The following is a brief outline of the specific steps in the implementation of CBM in the classroom.

Teacher Use of CBM

Student progress may be monitored in two ways: Through (a) performance measurement and (b) progress measurement (Deno & Mirkin, 1977). In *performance measurement,* the goal is to improve the student's performance on the same level of material. For example, a teacher measures, on a frequent basis, a student's performance on reading aloud for 1 minute from a third-grade text. Only randomly selected passages from this text level are used to assess the number of words read correctly. In *progress measurement,* on the other hand, the goal is to track the student's progress by using increasingly more difficult material over time. Thus, the teacher establishes a hierarchy of skills or objectives and assesses mastery of the objectives. The measurement task is changed each time the student obtains mastery over a portion of the curriculum. For example, the teacher develops a set of phonic skills and then determines that a performance standard of reading 75 words per minute correctly with no more than 5 errors is the mastery-level criterion for the student to progress to the next objective or skill (Deno & Fuchs, 1987).

After the teacher has determined which type of measurement is to be used, the timing and frequency of measurement are established along with the criterion for mastery. A typical frequency of measurement is two or three times per week. Many options are available for setting mastery criteria (the long-range goal statement), including (a) national norms, (b) district-wide local norms (Marston & Magnuson, 1985), and (c) school- or class-specific norms (Germann & Tindal, 1985). Some districts choose to set an expected rate of progress and establish goals based on that rate. For example, an ambitious goal in reading is to look for an average improvement of two words per week. Over a 35-week school year, the teacher may expect a 70-word improvement over baseline scores.

The curricular areas of reading, spelling, math, and written expression are generally used for performance or progress measurement. Traditionally, teachers evaluate progress toward IEP goal attainment by unit tests, worksheets, and other written assignments, as well as teacher observation. In CBM the teacher frequently and systematically evaluates student performance through direct and repeated measurement of specific behaviors. For each identified academic area, the student performs a behavior that correlates with the specific skills using the curricular materials. In reading, for example, the most common form of CBM entails having students read aloud for 1 minute from randomly selected passages from the district's basal series (Deno, Mirkin, & Chiang, 1982). The teacher counts and records on a graph the number of words read correctly and incorrectly. Similarly, in spelling, the student spells randomly selected words from the basal spelling series when dictated by the teacher during a 2-minute period. Again, the teacher counts and graphs either the number of words or the letter sequences spelled correctly and incorrectly (Deno & Fuchs, 1987). In written expression, the student may write for 3 minutes in response to a story starter or a topic sentence. Again, the teacher counts and graphs the number

of words written, the letters written, or the number of words spelled correctly (Deno, Marston, & Mirkin, 1982). Finally, in math, the student computes randomly selected problems from the basal math text within 2 minutes, whereupon the teacher counts and graphs the number of digits computed correctly and incorrectly (Fuchs, 1987).

The behavior and data obtained from the measurement procedures outlined above provide the information needed to write effective, measurable long-range goals required in a student's IEP. Long-range goals require that the following information be specified: the number of weeks until the goal is attained, the specific time element required for the student to perform, the level in which the student will read, spell, or compute, and the criterion expected for individual students to attain goal mastery (Deno, Mirkin, & Wesson, 1984). Once determined, this information is transferred to a graph, which represents the continual assessment of student progress and program effectiveness. An aimline is drawn on the graph to visually display the direction the data must take. The aimline connects the baseline median score (obtained from three measurement probes obtained over a period of 3 to 5 days) with the goal or level to be attained as stated in the long-range goal. Performance is plotted over time, reflecting increases or decreases from one data point to the next (Tindal, 1987). The decision to change an instructional strategy follows a set of utilization rules that assist the teacher in determining when the program is no longer achieving the expected results (Wesson, 1987). For example, if three consecutive data points fall below the aimline, teachers are directed to make a substantial change in their instruction. A change means that they may replace an attempted strategy with a different strategy while the core of the instructional program, typically consisting of three or four strategies, remains the same.

Another component of CBM requires that teachers develop a plan for instruction and that they stick to the plan. Only by such consistent planning and implementation can an intervention be evaluated for effectiveness. A particular instructional plan in reading, for example, may consist of paired reading for 10 minutes, a direct instruction group for 30 minutes, repeated reading for 10 minutes, and homework based on skill sheets.

Conclusion

Teachers carry an enormous responsibility in helping to prepare students to develop into self-fulfilling and socially appropriate individuals. In order to accomplish this goal, precise measurement tools must be utilized along the way to determine progress. Overused standardized test results are not helpful to teachers and can be misleading (Lovitt, 1988) when used to plan and evaluate instructional strategies. Various studies provide empirical evidence supporting the use of assessment measures that are valid, reliable, and sensitive to student growth (Deno, Mirkin, & Chiang, 1982; Fuchs & Fuchs, 1986). By using curriculum-based measures, teachers no longer have to wait for periodic assessments to revise the instructional plan if deemed inappropriate. Instead, CBM allows teachers to customize and individualize their teaching efforts in an efficient and timely manner, thereby increasing their accountability and the instructional effectiveness (Deno, 1985a; Lovitt, 1988).

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disabilities

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Strand _____
Session _____

council for learning disabilities

Control # _____
Time _____
Room _____

ADVANCING THE FIELD: TODAY'S BEST PRACTICES -- CHALLENGES FOR THE 1990s

Please type all information

TITLE OF PROPOSAL (10 words or less): _____

_____

ABSTRACT (50 words or less): _____

_____

_____

_____

_____

DETAILED DESCRIPTION (250-300 words - attached)

SESSION TYPE (check the one that best describes your proposed presentation)

- ☐ WORKSHOP - To teach a skill
- ☐ REGULAR SESSION - To share new information or best practices within a strand
- ☐ SYMPOSIUM - A series of short addresses on a particular strand topic
- ☐ RESEARCH REPORT - Regular session -- report of findings
- ☐ TOPIC ROUNDTABLE - Brief informal reports (10 - 15 minutes) with discussion
- ☐ POSTER SESSION - Spotlight on best practices or brief research reports

PREFERRED LENGTH OF PRESENTATION

- ☐ 10 - 15 minutes
- ☐ 20 - 30 minutes
- ☐ 1 hour
- ☐ 2 hours (Workshop or Symposium)

STRAND (Check the one that best describes your proposed presentation. Preference will be given to proposals that focus on the identified topics. The Program Committee reserves the right to alter session time allocations in order to accommodate all accepted proposals.)

- ☐ Critical Issues for the 1990s
- ☐ Understanding Learning Disabilities -- Insights from Other Disciplines
- ☐ Best Instructional Practices: Reading and Written Expression
- ☐ Best Instructional Practices: Listening and Oral Language
- ☐ Best Instructional Practices: Mathematics and Problem Solving
- ☐ Learning to Learn
- ☐ Promoting Social-Emotional Well-Being and Self-Management
- ☐ Best Practices: Making Critical Transitions
- ☐ Developing Collaborative Partnerships
- ☐ Innovative Program Designs and Program Evaluation
- ☐ Other (specify) _____

_____

Session Coordinator _____ Title _____
Address _____
City/State/Zip _____
Home Phone ___ / _____ Work Phone __ / _____

Participant _____ Title _____
Address _____
City/State/Zip _____
Home Phone ___ / _____ Work Phone ___ / _____

Participant _____ Title _____
Address _____
City/State/Zip _____
Home Phone ___ / _____ Work Phone __ / _____

Participant _____ Title _____
Address _____
City/State/Zip _____
Home Phone ___ / _____ Work Phone ___ / _____

If this proposal is accepted, I agree to make the presentation at the assigned time. I understand that acceptance of the proposal does not exempt participants from paying conference fees. I further understand that any audiovisual equipment used in the presentation, other than an overhead projector, will be the responsibility of the participants.

_____
Signature of Session Coordinator

_____
Signature of CLD Chapter President (if applicable)

Send THREE copies of the Program Proposal Cover Sheet and the detailed description, along with TWO self-addressed, stamped envelopes to: Cherry K. Houck, Program Chair, Council for Learning Disabilities, P.O. Box 40303, Overland Park, Kansas 66204.

Proposals must be postmarked no later than January 15, 1990.

CLD MEMBERSHIP APPLICATION

NAME_____

POSITION_____

ADDRESS_____ CITY_____ STATE/PROV_____

POSTAL CODE_____ DAYTIME PHONE_____ SS # (OPTIONAL)_____

CLD ANNUAL DUES
_____ $35.00 Professionals
_____ $25.00 Students*
(CLD membership includes LDQ and LD Forum)

Also, please process my order for:
_____ Academic Therapy ($20.00)
_____ Interdisciplinary Voices ($10.00)
_____ Journal of Special Education ($30.00)
_____ Journal of Learning Disabilities ($40.00)
(individuals – home delivery only)
_____ Remedial and Special Education ($30.00)
_____ The Pointer ($20.00)
_____ Topics in Early Childhood Special Education ($30.00)

_____ TOTAL REMITTED (U.S. Funds)

All orders must be prepaid.

Please check method of payment:
☐ Payment enclosed ☐ Visa ☐ MC

Card No._____
Card expires_____
Bank No. (MC only)_____
Signature_____

*Advisor's signature (students only):
_____

PLEASE RETURN MEMBERSHIP APPLICATION TO:
Council for Learning Disabilities
P.O. Box 40303
Overland Park, KS 66204
913/492-8755

CLD council for learning disabilities

Brian R. Bryant
Dept. of Special Education
University of Texas at Austin
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